

Louisiana State University Agricultural Center

Annual Report, FY 2001

October 1, 2000-September 30, 2001

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Louisiana State University Agricultural Center

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Overview

The overall mission of the LSU Agricultural Center is to enhance the quality of life of the people of Louisiana through research and education programs that develop the best use of natural resources, conserve and protect the environment, enhance development of existing and new agricultural and related enterprises, develop human and community resources, and fulfill the acts of authorization and mandates of state and federal legislative bodies.

In realizing this mission, the LSU Agricultural Center's Plan of Work, FY 2000-2004, focused research and education programs under five goals established by USDA-CSREES in pursuance of the mandate of the Agricultural Research, Education, and Extension Reform Act of 1998 (AREERA). An annual report of the research and extension programs conducted during FY 2000 (October 1, 1999-September 30, 2000) was submitted March 1, 2001. This report for FY 2001 (October 1, 2000-September 30, 2001) updates information about several of the ongoing programs which were included in last year's report, and provides information on new initiatives and projects undertaken during the year. Summaries of research projects and extension programs are included under each goal. These summaries are followed by information about the processes used for stakeholder input into and merit review of programs, and allocations of federal appropriations to multi-state and multi-function activities.

Research Projects

The majority of the LAES program is in Goal 1. Research emphasis continues to focus on plant variety development and evaluation; farm production economics, budgets, marketing, and trade (domestic and international); pest management; and animal production systems including nutrition, cross-breeding, stocking rates and grazing management.

Variety development and performance research continued on all major crops grown in Louisiana. Herbicide resistant rice developed by a LAES research team of breeders, pathologists, physiologists, and weed scientists will be available for the 2002 growing season. This non-transgenic rice, called Clearfield Rice, will allow enhanced management of red rice, one of the most severe pests of the crop. Environmental gains will be associated with adoption of Clearfield Rice as well. In addition to reducing the amount of herbicide released into the environment, Clearfield Rice will reduce the need to "muddy" the water when planting (red rice control strategy), which will result in cleaner water being released from rice fields. Also, Clearfield Rice should require less water to produce the crop because of the requirement to drill plant. The small grains breeding program has released both wheat and oat varieties over the last several years, in addition to annual evaluation of varieties from breeders at other U.S. institutions.

Because of Louisiana's climate, varieties adapted for the state must exhibit resistance or tolerance to plant pathogens. Again, a team of scientists representing various scientific disciplines cooperate to develop small grains varieties for Louisiana and the southern U.S.

LAES scientists continue to evaluate new pesticide chemistries and expansion of the labels of existing products. Evaluation of transgenic crops with insect and herbicide resistance continue on cotton, soybean, and corn. Research scientists partner with extension specialists to develop and recommend treatment thresholds and treatment options. Rice and aquaculture research teams continue to work closely to develop an insecticide control program for rice water weevil that is compatible with crawfish production. A public and private partnership has resulted in production of healthy seedcane that has significantly reduced the incidence of ratoon stunting disease, a major problem in sugarcane. Because of widespread adoption of combines for harvesting sugarcane, the availability of whole stalks for plant cane are limited. On-going research has shown that planting 'billets' that result from combine-harvested cane can result in yields comparable to whole stalk plantings.

In addition to developing and updating production budgets for major Louisiana crops, agricultural economics research has begun to assess the economic consequences of trade impacts resulting from changes in domestic agricultural and economic policies and elucidate the impacts of continued reforms in trade treaty agreements. An important component of this research is to develop road maps of policy options and consequences. To accomplish the goals of the research effort, conferences have been held to analyze agricultural trade policies; analyses of the impact of increasing the sugar import quota for Mexico and Cuba were conducted; and along with two southern land-grant universities, analysis of competitiveness among countries in the NAFTA and potential Free Trade Area of the Americas was examined.

Aquaculture researchers are evaluating cryopreservation to ensure security of germplasm resources and develop a new industry for the storage and distribution of improved germplasm. Animal scientists continue to search for genetic variation in Brahman and Brahman crossbred cattle to improve growth, carcass, and tenderness traits. Improvement in tenderness and carcass quality grades could reduce price discrimination for slaughter steers and heifers demonstrating Brahman influence, which is common in the southeastern U.S. and Texas. LAES scientists participate in a intra-state multi-location cool-season annual forage variety testing program and results of the trials are used by extension personnel to develop a recommended list of varieties for Louisiana. Studies on stocking rate and grazing management revealed that given lower cow performance and somewhat lower calf performance on rotational-stocked pastures compared to continuous grazed pastures, producers should question the additional expenditures of time and money to facilitate rotational grazing management.

Extension Programs

Education programs of the Louisiana Cooperative Extension Service were conducted in all five goals. In FY 2001, total Extension professional Full Time Equivalents (FTEs) amounted to 384.77, and 6,877,274 educational contacts were made. The distribution of professional FTEs and educational contacts by federal goals was as follows:

Federal Goal	Number of Extension FTEs	Educational contacts
1	115.45	2,452,299
2	6.6	198,318
3	77.20	1,361,797
4	36.73	1,177,972
5	148.79	1,686,888

Extension publications on a range of topics were issued for dissemination to adult and youth clientele in support of extension education programs. Forty-three new publications were developed, 103 publications were reprinted, and 67 publications were revised.

Significant accomplishments include:

Soybean producers enrolled in the Soybean Research Verification Program produced 49% (16 bushels/acre) more soybeans than the state average production. The success of this program is expected to be replicated in the Louisiana Rice Research Verification Program initiated during the year.

Farmers enrolled in a comprehensive marketing agricultural commodities course reported gaining knowledge of the major concepts taught and requested that the course be provided to other farmers.

Over 80% of crawfish and catfish farmers indicated using the LSU AgCenter as a major source of information and that their management operations had been greatly influenced by LSU AgCenter recommendations.

Almost 80% of cotton farmers followed LSU AgCenter recommendations.

Over 1,000 images of crop disease, weed, and insect infestations on farmers' fields were diagnosed and treatments speedily relayed to producers using a digital diagnostic network developed in collaboration with the University of Georgia.

One rural blueberry grower increased his total income eight-fold (from \$23,000 to \$187,000) by changing the way he handled pollination of berries.

Two hundred and forty-three new master gardeners and 363 existing master gardeners provided technical assistance by answering horticulture questions from clients over the telephone. These volunteers provided 29,140 hours of service, valued at \$437,000. Seventy five percent of production acreage in Louisiana is under integrated pest management programming.

Ninety-five percent of 410 producers who attended cotton nematode control presentations during the year increased their yield and profit by 10-15%.

Over 750 natural resource professionals, loggers, and landowners in Louisiana, Mississippi, and Arkansas estimated the personal value of education programs in forest management, growth and yield modeling, and forest management for wetlands and water quality at approximately \$1,875,000.

Clientele evaluations of family and consumer sciences education programs in food safety, nutrition, diet and health, parenting, and family resource management revealed that overall over 60% of clientele made significant gains in knowledge and intended to use the practices taught in those programs.

A total of 184,666 students were reached in the character education program which was taught by over 7,500 adult and youth instructors in the school year 2000-2001. Over 75% of teachers and principals participating in evaluation surveys reported improvement in the behavior of students in their schools.

Economic development initiatives resulted in 300 community and agricultural leaders gaining experience in analyzing and using economic development data, 450 producers learning and using alternative marketing strategies, and 3,000 residents learning about natural resource and heritage-based economic development.

GOAL 1

LSU AgCenter Goal 1 is to achieve an agricultural production system that is highly competitive in a global economy.

Research Reports

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Variety development and performance research continued on all major crops grown in Louisiana. Herbicide resistant rice developed by a LAES research team of breeders, pathologists, physiologists, and weed scientists will be available for the 2002 growing season. This non-transgenic rice, called Clearfield Rice, will allow enhanced management of red rice, one of the most severe pests of the crop. Environmental gains will be associated with adoption of Clearfield Rice as well. In addition to reducing the amount of herbicide released into the environment, Clearfield Rice will reduce the need to “muddy” the water when planting (red rice control strategy), which will result in cleaner water being released from rice fields. Also, Clearfield Rice should require less water to produce the crop because of the requirement to drill plant. The small grains breeding program has released both wheat and oat varieties over the last several years, in addition to annual evaluation of varieties from breeders at other U.S. institutions. Because of Louisiana’s climate, varieties adapted for the state must exhibit resistance or tolerance to plant pathogens. Again, a team of scientists representing various scientific disciplines cooperate to develop small grains varieties for Louisiana and the southern U.S.

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elucidate the impacts of continued reforms in trade treaty agreements. An important component of this research is to develop road maps of policy options and consequences. To accomplish the goals of the research effort, conferences have been held to analyze agricultural trade policies; analyses of the impact of increasing the sugar import quota for Mexico and Cuba were conducted; and along with two southern land-grant universities, analysis of competitiveness among countries in the NAFTA and potential Free Trade Area of the Americas was examined.

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Extension Reports

Noted accomplishments for Extension programs include:

- Soybean producers enrolled in the Soybean Research Verification Program produced 49% (16 bushels/acre) more soybeans than the state average production. The success of this program is expected to be replicated in the Louisiana Rice Research Verification Program initiated during the year.
- Farmers enrolled in a comprehensive marketing agricultural commodities course reported gaining knowledge of the major concepts taught and requested that the course be provided to other farmers.
- Over 80% of crawfish and catfish farmers indicated using the LSU AgCenter as a major source of information and that their management operations had been greatly influenced by LSU AgCenter recommendations.
- Almost 80% of cotton farmers followed LSU AgCenter recommendations.
- Over 1,000 images of crop disease, weed, and insect infestations on farmers' fields were diagnosed and treatments speedily relayed to producers using a digital diagnostic network developed in collaboration with the University of Georgia.

- One rural blueberry grower increased his total income eight-fold (from \$23,000 to \$187,000) by changing the way he handled pollination of berries.
- Two hundred and forty-three new master gardeners and 363 existing master gardeners provided technical assistance by answering horticulture questions from clients over the telephone. These volunteers provided 29,140 hours of service, valued at \$437,000.
- Seventy five percent of production acreage in Louisiana is under integrated pest management programming.
- Ninety-five percent of 410 producers who attended cotton nematode control presentations during the year increased their yield and profit by 10-15%.

Total extension expenditure on Goal 1 programs was \$9,251,701. Of this amount, multi-state expenditure is estimated at \$2,988,972 and multi-function at \$4,543,088.

Total Extension FTEs in Goal 1 programs were 115.45 and 2,452,299 educational contacts were made.

**GOAL 1
EXTENSION SUMMARIES**

Federal Goal 1

AGRICULTURAL FINANCIAL MANAGEMENT

Key Theme: Agricultural Profitability

Program Description

The agricultural financial management program is broad in scope. Program components address issues concerning the producer's ability to improve the financial condition of the farm business. The program strives to provide producers with research-based information, formal classroom instruction, and service-based educational opportunities to enable them to make better management decisions.

The direction for education programs offered in agricultural financial management is obtained through several avenues. An Extension Farm Management and Marketing Advisory Committee meets periodically to review the program and make plans for future program development. The advisory committee is comprised of producers, agribusinesses, agricultural consultants, and others who have shown true leadership in the agricultural industry of the state. In addition to the advisory committee, extension specialists periodically have both formal and informal discussions with producers, county agents, and research counterparts regarding the needs of clientele. Finally, input is solicited from county agents and producers during the development stages of many of the computer-based decision tools, fact sheets, newsletters, etc.

The program components of the agricultural financial management program range from record keeping to financial analysis and planning. Improved record keeping is stressed through workshops providing training in the use of Quicken and other computer-based record systems. Spreadsheet-based decision tools have been developed by extension specialists and are currently used by producers and agricultural consultants. In addition, our farm record books are in constant demand by agricultural producers in the state. As a result, extension specialists have totally updated the farm record and inventory management books made available to producers.

Seminars, fact sheets, newsletters, other extension publications, and special project reports are provided to producers with information on crop enterprise selection, cost of production estimates, cost and return comparisons, and partial budgeting issues. This information enables producers to make informed decisions with regard to their farming operations.

Extension specialists are also involved with multi-disciplinary verification programs for rice and soybeans. These verification programs serve as educational opportunities for producers to learn the benefits of following recommended production and cultural practices besides providing training in analyzing production costs.

One of the major focus areas has been the Farm Service Agency (FSA) Borrower Training Program. This program consists of 35 hours of class instruction providing training in goal setting, record keeping, budgeting, financial statements, and interpretation and use of financial instruments.

Because agricultural policy directly impacts the financial situation of any farming enterprise and because we are currently in the process of developing a new Farm Bill, extension specialists cooperated with extension personnel from 28 states in conducting a national agricultural policy survey. This survey was designed to provide agricultural producers with an avenue to express their preferences and concerns with regard to agricultural policy. The results from this study were made available to members of Congress as they continued the process of developing a new Farm Bill.

In conjunction with the educational programs and the dissemination of research-based information, extension specialists continue to provide individualized assistance to producers. With low commodity prices, agricultural producers have had difficulty in obtaining proper financing for their operations. In an effort to assist producers in these difficult times, extension specialists have analyzed the financial situation of several individual farming enterprises. Producers are provided with a complete analysis of the

options available with regard to crop selection, debt structure, and cost of production thus allowing them to choose the farm plan offering the most profit potential.

Finally, one of the new areas of focus has been the initiation of a Farm Management Association. Planning meetings held with interested producers helped to define a structure for the association with the purpose of collecting, analyzing, and providing producers with farm level information to make comparisons and decisions regarding their farming operations. The Farm Management Association stems from work by extension specialists on a Farm Management Enhancement Committee aimed at pinpointing focus areas for improving the agricultural financial management program. In addition to the Farm Management Association, the Enhancement Committee has developed a proposal for the initiation of area farm management specialists throughout the state.

Multi-state work: Along with participation in the national agricultural policy survey, extension specialists continue to be involved in multi-state programs. Specialists are involved with the Southern Region Extension Farm Management, Marketing, and Policy Committees. Many programs used in the state have been developed, in part, from work in the Southern Extension Committees and with extension counterparts from throughout the South. Specialists continue to serve on the Tri-State Soybean Forum Board which provides production, farm management, and marketing education to producers in Louisiana, Mississippi, and Arkansas. Extension specialists and their research counterparts are also involved with the Delta States Farm Management Committee.

Program Impact

Approximately 48 individual farm financial plans were prepared for producers. All of the producers have been able to use this information to either obtain adequate financing for their operations or alter their farm operations to provide the greatest potential for profitability.

Five (5) Quicken classes were conducted with 60 producers throughout the state. The success of these programs has been evident in producers' desire to computerize their record keeping systems. As a direct result of these workshops, extension specialists have received requests from producers and agricultural consultants for additional spreadsheet record keeping and decision aid tools.

Forty (40) producers were provided training in farm and financial management, marketing, and risk management through the Farm Service Agency Borrower Training Program. To date, nearly 750 Louisiana farmers have successfully completed the course fulfilling the educational requirements for eligibility of FSA loans.

Ten (10) rice producers and 15 soybean producers were enrolled in verification programs. These producers were assisted in developing and analyzing their cost of production based on recommended production and cultural practices. When comparing projected enterprise budgets and costs collected through the verification programs, producers enrolled in the program had variable costs per unit of production that were nearly \$3.00 per hundredweight for rice and nearly \$1.00 per bushel for soybeans lower than the cost for the average producer in the state. This improvement in cost of production results from higher production and improved attention to the economic returns associated with each and every production practice.

As part of the national agricultural policy survey, 2,245 agricultural producers in Louisiana were surveyed to obtain their views on agricultural policy. Nine percent of the mailed surveys were returned providing those producers with a voice in the development of the next Farm Bill.

Source of Funds

Smith-Lever 3b,c

Scope of Impact

While the majority of the agricultural financial management program is state-specific, there are components that are multi-state and multi-function.

Multi-state: Much of the material used in Quicken training has been adopted from material from the Southern Extension Farm Management Committee. Also, much of the material used in updating the FSA Borrower Training Curriculum was adapted from material from the Southern Extension Farm Management Committee and the National Agricultural Risk Library. The national agricultural policy survey was a 29-state effort to elicit the views of agricultural producers with regard to policy. Finally, extension farm management specialists are involved with southern region extension committees, the Tri-State Soybean Forum, and the Delta States Farm Management Committee. As a result of this collaboration, it is estimated that 20% of the agricultural financial management program can be classified as multi-state. The total FTEs devoted to the agricultural financial management program in the reporting period is 4.59, valued at \$367,824 (\$80,136 per FTEx4.59 FTEs). The dollar equivalent of the multi-state effort in this program is \$73,564.

Multi-function: The rice and soybean verification programs utilize research-based cost data in providing cost analyses for each of the involved producers. In addition, many of the seminars, fact sheets, and other publications utilized in the program are a result of collaboration between extension and research personnel. It is estimated that 10% of the FTEs expended in this program for a dollar equivalent of \$36,782 (\$80,136x4.59X0.1).

Federal Goal 1

AGRICULTURAL MARKETING

Key Theme: Agricultural Profitability

Program Description

Extension agricultural economics specialists have an ongoing comprehensive program to monitor and provide commodity outlook information to Louisiana producers. This program was developed over the years as a result of meetings with county advisory groups, county agents and agribusiness firms. The activities in the program consist mostly of commodity outlook meetings, monthly commodity outlook newsletters, and marketing workshops tailored to meet the needs of particular groups. A state agricultural economics advisory committee meets periodically to express the information needs of producers and to offer suggestions to strengthen the ongoing program. Extension specialists often participate in county advisory committee meetings to solicit suggestions and input from stakeholders. Based on input from advisory committees, county agents and individual producers, extension specialists design marketing workshops to meet the needs of particular groups at the request of county agents.

Extension specialists participate annually in the Southern Regional Outlook Conference and the Southern Regional Marketing Committee meetings. Additionally, extension specialists attend and participate in the Tri-State Soybean and National Rice Outlook Conference. These meetings provide specialists with current outlook information and current issues which is shared with colleagues. USDA economists also attend many of these meetings, allowing extension economists to make valuable contacts to call on when developing current commodity outlook information.

Program Impact

In January and February each year county agents hold county producer meetings where production and commodity information is presented and discussed with producers. Extension specialists participated in 25 county meetings where it is estimated that over 850 producers were in attendance. In the remainder for the year, extension economists presented commodity outlook information at 10 other meetings, with over 250 producers in attendance.

Extension economists prepare monthly commodity outlook newsletters which are e-mailed to county agents. County agents electronically forward these newsletters to those producers who are on the county e-mail list. Agents also print the newsletters and mail them to those producers who do not have access to computers. It is estimated that over 3,000 producers and agribusiness firms receive these newsletters. Recipients of these newsletters often express that these newsletters are extremely valuable input in making wise and profitable decisions in managing their farm businesses.

Extension economists developed a comprehensive marketing course in 1997, entitled Marketing Agricultural Commodities (MAC), as a result of input from the advisory committee, county agents, and producers. The course consists of seven three-hour sessions and covers the following subjects: breakeven price analysis, developing price objectives, marketing alternatives, futures markets, hedging, options, fundamental and technical market analysis, and the role of crop insurance. The MAC program continues to be one of the most popular programs offered by the extension agricultural economics division. During the reporting period, one class was taught with a total of 20 farmers enrolled. A survey of the participants indicated an average response of 2.6 in their level of improvement in knowledge on a scale from 1 to 4, with 1 being no improvement and 4 being great improvement. The range of responses was from 2.33 to 3.0. In addition to the very favorable evaluation, several participants in the course in 2001 requested that the MAC program be offered again in their area in 2002.

Source of Funds

State and Federal (Smith-Lever 3b+c)

Scope of Impact

Multi-state: Extension specialists efforts in multi-state work in agricultural marketing is estimated at 0.5 FTE or \$40,068 (.5 FTE x \$80,136 per FTE).

The states involved in the Tri-State Soybean Forum include Louisiana, Arkansas and Mississippi.

The states involved in the National Rice Outlook Conference include California, Texas, Louisiana, Mississippi, Arkansas and Missouri.

The states involved in the Southern Regional Outlook Conference and the Southern Regional Marketing Committee are the 13 southeastern states.

Federal Goal 1

AQUACULTURE

Key Theme: Agricultural Competitiveness

Program Description

The aquaculture program focuses on the delivery of research-based information, as well as updates on national issues and international trade concerns. This information is provided through newsletters, leadership group activities, producer meetings, and phone consultations.

This is an ongoing program facilitating information exchange and dissemination through established channels. Collaboration has been obtained from agencies such as the NRCS, FSA, and Louisiana Department of Wildlife and Fisheries.

Program Impact

In a survey of catfish and crawfish producers, the vast majority (93% and 87%, respectively) in each group reported receiving information from the LCES during the past year in newsletters, over the phone, or in person. Forty-four percent of catfish producers and 27% of crawfish producers reported attending Extension-sponsored meetings, workshops or field days. Eighty-seven percent of respondents in each group indicated the information they received from LCES was of use to them.

Seventy-three percent of crawfish producers indicated their management practices have been greatly influenced by Extension recommendations. Fifty-three percent of catfish producers indicated their management practices were 'greatly' in agreement with Extension recommendations, while 47% indicated their management practices were 'somewhat' in agreement.

Source of Funds

Federal and state funds have allowed for the success of this programming effort.

Scope of Impact

Multi-state: While the majority of impact occurs in Louisiana, LCES programming and educational materials are occasionally used by clientele from surrounding states (an estimated 30% of total contacts). Educational materials posted on the web and developed through the Southern Region Aquaculture Center represent multi-state efforts to disseminate research-based information. Crawfish and tilapia production programming, in particular, are utilized by isolated producers in a number of states. Total FTEs expended in the aquaculture program in the report year were 6.14. It is estimated that 65% of program effort is multi-state (EPA efficient issues, Southern Region Aquaculture Center, professional meetings, phone/internet consultations with state counterparts, LCES specialist-agents contact and programming), the dollar equivalent of which is \$319,823 (6.14 FTEs x \$80,136 per FTE x .65).

Multi-function: Much of the past year's aquaculture programming has involved an integrated approach between research and extension- especially with regard to addressing potential problems in crawfish production from the rice pesticide ICON, and in developing best management practices to minimize water quality impacts. It is estimated that 40% of this aquaculture program FTEs is attributable to integrated research-extension activities, the dollar equivalent of which is \$196,814 (6.14 FTEs x \$80,136 per FTE x .40).

Federal Goal 1

BEEF

Key Theme: Animal Production Efficiency

Program Description

Meetings with stakeholders were held to introduce and discuss efficient production practices for cattle. Principal topics of discussion included reproduction, health, nutrition, low stress handling, quality assurance, marketing, and breeding and animal selection. The Louisiana Calf to Carcass Program was developed and expanded to provide producers with preconditioning and feedlot performance, and carcass information on their own cattle. Meetings were held to discuss these data with stakeholders. Discussion on the general direction of the industry as it becomes more consumer driven was initiated and producers were encouraged to think of themselves more as beef (meat) producers and not cattle (animal) producers. The Forage-Based Bull Performance Test was initiated and maintained to provide seedstock and commercial producers with growth performance data of bulls while on forage as a means of identifying superior bulls for efficient production on grass. The newly developed Beef-Forage Short Course was continued to provide producers with critical information-efficient production practices as well as the general direction of the industry from a national perspective. In support of the exhaustive outreach efforts, numerous parish cattlemen's meetings, research and extension field days, home and office visits, mass media contacts (television, radio, news, and trade magazine articles, etc.), and other meetings were held to educate producers. Local and statewide advisory committee meetings were held to seek stakeholder input and to encourage participation.

Marketing, quality assurance, nutrition, reproductive efficiency, herd health and animal selection were addressed at numerous levels, including local parish meetings/programs, the statewide Beef-Forage Short Course, the Forage-Based Bull Test Program, and the Calf to Carcass Program. For example, through a statewide survey, innovative marketing was identified as a concern and was a key theme for the 2001 Beef-Forage Short Course. Nationally recognized market personnel were brought in to discuss options with producers.

The program was initiated to provide producers with the educational background to be efficient, profitable and competitive at the national level. Major activities included the Calf to Carcass Program, Forage-Based Bull Test Program, and Beef-Forage Short Course. Thirty-four producers participated in the Calf to Carcass Program (consigning 524 calves), 9 seedstock producers participated in the Forage-Based Bull

Test Program (consigning 50 bulls), and approximately 125 producers and allied industry personnel participated in the Louisiana Beef-Forage Short Course. Further, a handbook entitled "Beef Cattle Production in Louisiana" has been produced and is available to producers and allied industry personnel. In addition, a Beef Best Management Practices (BMP) Guide is being developed for beef cattle producers in Louisiana to use as a guide for cattle production with environmental sustainability.

Collaborators involved in educational programming, i.e., planning, implementation, financial support, presentation, labor support, data collection at different levels included Fort Dodge Animal Health; Merial Animal Health; Elanco Animal Health; Texas A&M University; Louisiana Cattlemen's Association; Louisiana Beef Industry Council; Nutrena Feed Division; Lansco Nutritional Services, Inc.; Pfizer Animal Health; LSU School of Veterinary Medicine; Hitch Feedlot, Inc.; Louisiana Tech University; McNeese State University; LSU-Alexandria Campus; Louisiana Department of Agriculture and Forestry; Prison Enterprises; Dixon Correctional Institution.

Program Impact

As a result of beef educational programs, producers are providing better health, nutrition and reproductive programs for their cattle. Better animal selection has taken place as indicated by the higher quality of cattle being produced. Alternative marketing methods are being adopted. Quality assurance and low stress handling practices have been adopted by producers thereby improving production efficiency. More long range planning with sustainability seems evident. Agent training through multi-state and multi-functional efforts has improved technology transfer to producers.

Source of Funds

Smith-Lever 3 b,c

Scope of Impact

The impact of the program has specific components which are both confined to Louisiana and serve a multi-state role. Examples of activities typically confined to Louisiana include local parish and district area meetings, advisory committee meetings, the Forage-Based Bull Test Program, as well as Research Station Field Days. These activities are specifically aimed toward Louisiana producers without a significant multi-state component.

Examples of activities that have multi-state implications with collaborative agreements include the Texas A&M University Beef 706 and 808 Programs, the Louisiana Calf to Carcass Program and the Louisiana Beef Forage Short Course. These programs involve other states such as Texas, Oklahoma, Kansas, Mississippi, Alabama, and Arkansas. The source of some of the ideas and materials for those programs are a result of personal and professional contacts made through these multi-state activities. Examples of multi-functional activities involving research and extension include the Calf to Carcass Program, Research Station Field Days, the Beef-Forage Short Course, agent training, and advisory committees.

Multi-state: Collaboration constitutes approximately 50% of the effort. At 13.52 FTE for adult and youth work in beef the dollar equivalent of multi-state work is \$541,719 (13.52 FTEs x \$80,136 per FTE x .50).

Multi-function: Integrated research-extension activities make up approximately 80% of the effort. At 13.52 FTE for adult and youth work in beef the dollar equivalent of multi-function work is \$866,751 (13.52 FTEs x \$80,136 per FTE x .80).

Federal Goal 1

COTTON EDUCATION PROGRAM

Key Theme: Agricultural Profitability

Program Description

Advisory groups were used to determine industry problems and direction for Extension programs. Results from previously conducted surveys were also used for program guidance.

Problems identified included need for cotton variety, pest management, conservation tillage systems, weed control and herbicide information; ways to improve cotton fiber quality; soil management; irrigation timing and management.

A comprehensive extension education program for cotton producers was implemented. The performance goal of the program was to increase yields and profits of Louisiana cotton producers by following recommended best management practices to produce their crop. The program provided information in the areas of variety selection, pest management, tillage, fertility, herbicide selection and weed control, defoliation, and irrigation. The following educational activities were conducted during the year.

Five agent training sessions were conducted to inform LSU Agricultural Center personnel working in cotton production of the latest recommended best management practices.

The state cotton specialist and parish extension agents conducted 29 on-farm demonstrations in the major cotton growing parishes.

Two on-farm research projects were conducted jointly with faculty of the LSU Agricultural Center's Experiment Station.

Forty-two educational meetings and five field days were conducted to keep growers informed of recommended practices.

A monthly cotton newsletter was distributed to producers, consultants, and agribusiness personnel throughout the growing season. The newsletter contained updates on recommendations and kept clientele informed of current events.

Mass media programs were produced weekly to keep clientele informed.

Twenty-two news articles were written and distributed.

The LSU AgCenter cotton web page was updated weekly and e-mail updates sent weekly to growers and agribusiness personnel.

The state cotton specialist worked across state lines and attended professional work group sessions to insure that Louisiana growers are receiving the best possible information.

Faculty from other land grant universities in cotton producing states and industry personnel were used to conduct statewide educational programs.

Collaborators in the cotton education program included extension and research faculty within the cooperating land grant system (Louisiana State University and A&M College and Southern University and A&M College); other educational institutions within the state; extension research faculty within the region's land grant institutions (University of Arkansas, University of Tennessee, Auburn, Mississippi State, Texas A&M, Virginia Tech, North Carolina State, University of Georgia, and Oklahoma State.); USDA agencies; state environmental agencies; Louisiana Farm Bureau Federation; Louisiana Cotton Producers Association; Professional organizations; Louisiana Department of Agriculture and Forestry; Private industry.

Program Impact

Over 2,000 farmers, consultants, and industry personnel attended the field days and educational meetings.

Training sessions for LSU AgCenter personnel were attended by extension agents working in cotton production programs.

Extension agents and specialists made presentations at national meetings.

Twenty extension agents and/or specialists attended national meetings.
Extension agents and/or specialists conducted 50 on-farm demonstrations.
Two joint research/extension farm projects were conducted.
Eight out-of-state speakers were used for educational programs.
Cotton acreage in Louisiana has increased by 25%.
Almost 80% of Louisiana cotton producers follow LSU AgCenter recommendations.

Source of Funds

Smith-Lever 3 b, c
Cotton Incorporated

Scope of Impact

Multi-state: Participation in and information-sharing from Beltwide Cotton Conferences, with a total multi-state effort valued at \$52,088 (6.5 FTEs x \$80,136 per FTE x .10).

Multi-function: Researchers and extension specialists collaborated on preparing publications, development and training of agents, consultants, agribusiness personnel, and farmers for a multi-function effort valued at \$667,533 (8.33 FTEs x \$80,136 per FTE x 1.0).

Federal Goal 1

DAIRY

Key Theme: Agricultural Profitability

Program Description

In meetings with stakeholders, problems with interpreting and utilizing dairy herd records, somatic cell count, forage quality, dairy cow nutrition, dry cow management, cow comfort, financial management, herd health and waste management were identified. Dairy herd record training for field men and producers has continued. Field days, seminars, conferences, meetings and materials on forage quality, dairy cattle nutrition, dry cow management, cow comfort, financial risk management and herd health were held. A publication on Dairy BMPs has been developed and distributed along with other meetings concerning waste management.

Program Impact

As a result of these programs, herds on DHI produce approximately 4,500 pounds more milk annually and are making improvements in their management and profitability while staying in business longer. Forage quality is improving due to the adoption of improved harvesting and storage methods of home grown forages. More producers are purchasing higher quality forages to improve the overall nutrient value of the forages consumed by the milking herd. Producers are adopting heat stress abatement strategies in the summer in order to improve cow comfort. Producers are making progress by taking advantage of programs implemented to improve the waste management systems of their operations.

Source of Funds

Smith-Lever 3 b, c

Scope of Impact

Ideas and materials for the program are the result of SERA – IEG 15 (Dairy), a memorandum of understanding between Louisiana and Mississippi on joint dairy educational programs, collaboration between LA DHIA and MS DHIA for joint training, Southern Dairy Conference, Mid-South Ruminant Nutrition Conference, Dairy Records Management Systems and professional contacts with other state's dairy professionals.

Multi-state: 80% of the program is a result of the above multi-state meetings and materials. A total of 4.55 FTEs were devoted to the dairy program, and developed as a result. The dollar equivalent of multi-state work is \$291,695 (4.55 FTEs x \$80,136 per FTE x .80).

Multi-function: Researchers and extension specialists collaborated on the development and training of agents and producers for a 90% multi-functional effort. The dollar equivalent of multi-function work is \$328,157 (4.55 FTEs x \$80,136 per FTE x .90).

Federal Goal 1

DIGITAL DIAGNOSTIC PROGRAM

Key Theme: Agricultural Profitability

Program Description

Disease, weed and insect diagnosis has been an important educational and service function of the Louisiana Cooperative Extension service for years. Approximately 5,000 samples are diagnosed annually. Traditionally, samples are received by mail and “drop-in” service. The turnaround time by mail is slow and many times unacceptable for serious commercial problems.

Agricultural agents and large commercial agricultural production operations now have a faster way to send pest samples and to receive the identification or diagnosis.

Program Impact

A digital distance diagnostic network was developed with the University of Georgia. Named the Louisiana Distance Diagnostic Network (LDDN), approximately 1,000 digital image samples were received and diagnosed during the first two years. The savings to Louisiana clients are being calculated, but preliminary estimates are approximately \$500,000. More savings are expected during the third year of operation.

Source of Funds

Smith Lever and state funding for technology enhancement.

Scope of Impact

Louisiana and Georgia (with other states expressing interest) have been impacted positively by this system. Extension and research scientists are involved in the reception and diagnosis of the pest problems. Time and money allocations for 64 agricultural agents and 9 specialists have averaged 3% with the PI averaging 10% in multi-state efforts. The dollar equivalent of multi-state extension work is \$183,507 (73 FTEs x 80,136 per FTE x .03) (\$80,136 per FTE x 0.1 FTE).

Federal Goal 1

FRUITS AND NUTS

Key Theme: Agricultural Profitability

Program Description

LSU AgCenter specialists and county agents used input from advisory committees, grower associations, program evaluations at grower meetings, and personal contacts to identify grower problems that needed addressing. The primary areas of need were growing proper varieties, good pest control, and creative marketing. Effective fruit and nut production and marketing methods were taught through field days, grower meetings, television and radio spots, bulletins, newsletters, pest management e-mail alerts, and

individual extension personnel contacts. Extension personnel also produced numerous informative articles in grower magazines and journals. The Louisiana Pecan Growers Association and Mayhaw Growers Association presented educational programs to their members through newsletters and grower meetings.

Program Impact

Approximately 3,500 fruit and nut producers (85% of state's total producers) received information on fruit and nut production. Approximately 80% of producers who were surveyed indicated that they were planning or had recently made changes in their fruit and nut operations. Over 90% of major pecan growers were planning to use late season fertilization on at least some of their acreage. One rural blueberry grower was able to increase his total income from \$23,000 to \$187,000 by changing the way he handled pollination of his berries. This would bring a major increase of cash to the local economy and increase the number of employees

Source of Funds

Smith-Lever 3b, c

Scope of Impact

The ideas and material for the program are the result of the Horticulture section of the Southern Association of Agricultural Scientists, Ark-La-Miss Fruit Growers Conference, personal contacts, publications and collaborative training from extension and research personnel from North Carolina, Georgia, Alabama, Mississippi, Arkansas, Texas, Florida, California, and Oklahoma.

Multi-state: Forty-five percent of the program is a result of these meetings and materials. A total of 6.34 FTEs was devoted to the program with a total multi-state effort of \$228,627 (6.34 FTEs x 80,136 per FTE x .45).

Multi-function: Researchers and Extension specialists collaborated on the development and training of agents and farmers for a 100% multi-functional effort valued at \$508,062 (6.34 FTEs x \$80,136 per FTE x 1.0).

Federal Goal 1

HOME AND LAWN GARDENING

Key Theme: Home Lawn and Gardening

Program Description

Random sampling of stakeholders statewide in town meetings indicated a priority to receive LCES help and advice in home gardening to better succeed against the elements in producing home landscaping and vegetable supply. County agents in urban/suburban parishes are swamped with home horticulture calls and demands. Some agents report that 75% of telephone calls received in the growing season relate to home horticulture. Some people wish to receive in-depth horticultural study beyond production agriculture as well as an opportunity to provide a community service in that area. A **louisianalawnandgarden.org** site was developed to enhance accessibility to AgCenter consumer horticulture information.

The Louisiana Cooperative Extension Service developed and implemented a volunteer education and service consumer horticultural program called Louisiana Master Gardeners (LMG). The program follows the traditional Master Gardener format, patterned after that found in most states. The AgCenter-controlled program interacts with garden foundations, schools, food banks and the Master Gardener program of other states.

Program Impact

Louisiana has an estimated 411,600 home gardens with a total production value of \$107,027,960. Most of these gardens are found in areas enhanced by LMGs. In FY 2001, the LMG program trained 245 new volunteers and retained 363 others. These volunteers provided an estimated 29,140 hours of service to the parishes valued at \$437,100. This is 13.95 FTEs of paraprofessional support valued at \$348,850.

Source of Funds

Smith-Lever 3b, c funding for professional CES staff; volunteers pay for training materials and pledge program hours.

Scope of Impact

The ideas of LMG program come from regional and nationwide master gardening programs, conferences and workgroups (100%). Materials were borrowed from southern region master gardening programs and adapted for Louisiana use (75%). There is a total of 14.4 FTEs of professional staff reported for home gardens and home grounds-lawn programming.

Multi-state: Of the 14.4 FTEs, 6.4 FTEs are for home lawns and gardens work through the LMG program and representing multi-state work. The dollar equivalent attributable to multi-state activities is \$512,870 (6.4 FTEs x \$80,136 per FTE).

Multi-function: Multi-function work of research and extension collaboration in consumer horticulture, both in-state and between southern states, is 50% or 7.2 professional FTEs. This is equivalent to \$576,979 (7.2 FTEs x \$80,136 per FTE).

Federal Goal 1

INTEGRATED PEST MANAGEMENT

Key Theme: Agricultural Profitability

Program Description

The environment in Louisiana is ideal for growth, development and reproduction of many pests, including insects, weeds, plant pathogens and vertebrates. Louisiana receives from 50 to 80 inches of rain annually, which contributes to the development of these pests. These same conditions also hinder the management of them.

Several crop and non-crop areas are included in the Louisiana IPM program. Crops include rice, sugarcane, cotton, corn, soybeans, vegetables, ornamentals, fruits, nuts, wheat, Christmas trees, forests and forages. Non-crop areas include school grounds, parks, recreation areas and home grounds.

The aim of the IPM program in Louisiana is to help clients become more efficient in pest management while being good stewards of the environment in which all citizens live.

The use of an IPM advisory committee and the collaboration within the southern region IPM programs have given guidance to the IPM efforts in Louisiana.

Program Impact

The federal goal set forth by the Clinton administration was to have 75% of the acreage of production land in each state under an IPM program. It is felt that the goal has been reached in Louisiana because IPM techniques are used on nearly all crop production acreage in the state. IPM techniques and principles are disseminated in annual grower meetings and pesticide certification and recertification meetings where the benefits to the producer and consumer are discussed in detail. Cost analyses are also offered to demonstrate the economic impact with IPM usage in individual operations.

Source of Funds

Federal Integrated Pest Management Funds.

Scope of Impact

Much of the work done in IPM in Louisiana is due to collaborative efforts within the LSU AgCenter research and extension faculty and faculty in other southern states, especially Texas, Arkansas, Mississippi, Tennessee and Georgia. Since IPM efforts are composed of several disciplines, entomology, weed science and plant pathology collaboration has been essential and beneficial. About 60% of the efforts are multi-state and/or multi-functional. Meetings and recommendations derived from these efforts amount to \$384,652 (0.6 x 8 x \$80,136)

Federal Goal 1

LOUISIANA RICE RESEARCH VERIFICATION PROGRAM

Key Theme: Agricultural Profitability

Program Description

The Louisiana Rice Research Verification Program (LRRVP) is a program designed to demonstrate the most cost-efficient production of rice, increase confidence of rice growers in extension and research recommendations, increase confidence of county agents and specialists in their recommendations, educate county agents and growers in all aspects of rice production, develop an economic data base for rice production, and relay "real world" conditions to researchers in an effort to enhance scientific studies.

Program Impact

The program has met or is achieving all of its intended goals. Education of county agents and growers has been an immediate success. Bringing problems back to researchers has and continues to be a key part of the program. Gathering of economic data has identified certain areas, particularly water costs, that warrant further study. Some of the problems identified through the program have led to other research projects.

Source of Funds

Funding has come from the Louisiana Rice Research Board.

Scope of Impact

Although other states are not specifically involved information gained from this program is made available to all rice growing states for their use. It is also very much a multi-function effort as it involves researchers as consultants to extension personnel. Extension personnel provide the greatest percentage of time toward the project, but researchers are consulted throughout the growing season as necessary in problem solving.

Multi-function: Multi-function (integrated extension-research) efforts are estimated at 35% of the total number of FTEs expended in the program. These efforts include research-extension collaboration in agent training, formulation of recommendations, publications, and trouble shooting during the growing season. The dollar value of the multi-function effort is \$98,167 (3.5 FTEs x \$80,136 per FTE x .35).

Federal Goal 1

NEMATODE CONTROL

Key Theme: Agricultural Profitability

Program Description

Reniform nematode has spread throughout the major cotton growing regions in Louisiana in the past 15-20 years. Yield losses of 10-20% are normal with some fields suffering 40-60% losses. An educational effort has been under way to promote awareness and management opportunities to producers to lessen the impact of this pest. During the report year, there were seven training meetings for producers and consultants and eight replicated field trials emphasizing the latest management practices.

Program Impact

A total of 410 producers and consultants attended presentations on cotton nematodes. Ninety to ninety-five percent of those in attendance will adopt some of the management techniques which will result in a 10-15% increase in yield and profit.

Source of Funds

Smith-Lever 3b, c

Scope of Impact

Multi-state: Most of the ideas and management practices used in the program are the result of interacting with other scientists at meetings such as the Cotton Disease Council at the Beltwide Cotton Conferences, the Cotton Foundation Nematology Committee, and the Society of Nematologists annual meeting. Fifty percent of the program is the result of these meetings. The dollar equivalent of multi-state work is \$60,102 (1.5 FTEs x \$80,136 per FTE x .5).

Multi-function: Researchers and extension specialists collaborated on this program to train agents, producers, and consultants for a 10% multi-function effort. The dollar equivalent of multi-function work is \$12,020 (1.5 FTEs x \$80,136 per FTE x .10).

Federal Goal 1

NURSERY AND ORNAMENTALS

Key Theme: Ornamental/Green Agriculture

Program Description

Louisiana's nursery and ornamental program provides service to clientele engaged in commercial green industry activities, namely wholesale ornamental producers of woody and herbaceous plant material, retail garden centers personnel, landscape architects, and landscape contractors. Stakeholder input is obtained quarterly throughout the year at meetings attended by representatives of Louisiana's green industry. Clientele surveys are also conducted to obtain program input. Major problems being addressed at the current time include promotion and marketing of plant material (Get It Growing program), best management practices for irrigation and fertilization management, pest identification and control, and improving efficiency and profitability by adopting other recommended production practices. Nursery and landscape professionals are more aware of educational programs now offered by the Louisiana Cooperative Extension Service. As a result of these program efforts the following has been accomplished: (1) increased use of county agents, area horticulturists, and specialists for problem diagnosis and problem prevention, (2) introduction of new plant material, (3) retailers are providing training opportunities for their employees, (4) increased industry awareness of TMDLs, best management practices, and similar environmental issues, and (5) water quality is being recognized by nursery and landscape professionals as a key part of their production. Primary program delivery has been accomplished by educational programs (in-state and collaboratively with Arkansas, Mississippi, Alabama, and Texas), farm visits, e-mail updates, web page development, mass media, and newsletters. Cooperative and collaborative efforts are maintained and are ongoing with the following: Louisiana Nursery and Landscape Association

(newsletters and educational programs), Louisiana Turfgrass Association (newsletters and educational programs), Texas Nursery and Landscape Association (five-state educational program effort), nursery and landscape associations, and the state cooperative extension services in Arkansas, Alabama, and Mississippi (Gulf States Horticultural Expo and Mid-South Greenhouse Growers Conference).

Program Impact

Every licensed nursery and landscape professional receives information from the Louisiana Cooperative Extension Service's nursery and ornamental program annually. Approximately 50% participate in some of the educational program efforts on a regular or occasional basis. Many make production changes based on information learned. These changes are primarily in the areas of irrigation and fertilization management and selling new plant material. Landscapers are adopting improved pest management strategies.

Source of Funds

Smith-Lever 3 b,c

Scope of Impact

The nursery and ornamentals program impact is multi-state (AL, MS, TX, AR) and multi-function. The Louisiana Cooperative Extension Service allocated 2.98 FTEs for the nursery and ornamentals program for 2001.

Multi-state: Approximately 2.38 FTEs was in-state program work and 0.60 FTEs (\$48,082) was multi-state program work. Approximately 25% ($0.25 \times 2.98 \times \$80,136 = \$59,701$) of the program in nursery and ornamentals is attributable to multi-state efforts (primarily Gulf States Horticultural Expo, Mid-South Greenhouse Growers Conference, and Nursery/Landscape Expo educational short course).

Multi-function: Approximately 25% of the nursery and ornamentals program is multi-function valued at \$59,701 ($0.25 \times 2.98 \times \$80,136$).

Federal Goal 1

ORNAMENTAL/GREEN AGRICULTURE

Key Theme: Ornamental/Green Agriculture

Program Description

There are a number of plant-parasitic nematodes under quarantine restrictions both for import into and export from Louisiana. A joint project by the Extension Specialist and the quarantine section of the State Department of Agriculture and Forestry is under way to survey and monitor all nurseries and retail outlets in the state for the presence of these problem nematodes.

Program Impact

There are approximately 100 nurseries and retail outlets surveyed each year. Reniform nematode represents the greatest threat for nurseries that are exporting to several states such as California, New Mexico, and Arizona as well as to other countries. Reniform nematode is widespread in Louisiana but presently reported in only one nursery. The burrowing nematode represents the greatest threat to the ornamental industry in Louisiana valued at \$166 million.

Source of Funds

Smith-Lever 3, b, c

Scope Impact

Multi-state: Management and quarantine practices for this project come from scientists in other states, attending Society of Nematology and Organization of Nematologist of Tropical America meetings, and both state and federal quarantine and certification sources. Ninety percent of the program effort is the

result of these meetings. The dollar equivalent of multi-state work is \$36,060 (.5 FTE x \$80,136 per FTE x .90)

Multi-function: It is estimated that 10% of the program effort is attributable to integrated research-extension effort. The dollar equivalent of multi-function work is \$4,006 (.5 FTE x \$80,136 per FTE x .10)

Federal Goal 1

PASTURE AND FORAGE CROPS

Key Theme: Rangeland/Pasture Management

Program Description

Pastureland accounts for about 29% of the total acreage devoted to farmland in Louisiana. Forage harvested from nearly 400,000 acres annually produces a crop valued at over \$40 million. To adequately serve this clientele group, LSU Agricultural Center Extension specialists and agents conduct an educational program. This program includes farm visits, demonstrations, field days, tours, evening meetings and hay shows. Extension agents report that 50 meetings were held, with an average audience size of 27. Twenty on-farm demonstrations involving ryegrass varieties, bermudagrass varieties, pasture weed control and grazing management were conducted. LSU Agricultural Center extension personnel collaborate with the Louisiana Forage and Grassland Council (LFGC) on many educational activities. This grassroots organization provides an excellent forum for exchanging ideas, philosophies, and research findings. Some of the major activities of LFGC include an annual winter meeting, summer tours, a statewide hay show and a forage awards program.

Program Impact

In the report year, 5.04 FTEs of professional effort was expended on this program and over 25,000 contacts were made.

Source of Funds

Smith-Lever 3b, c

Scope of Impact

Multi-State: None.

Multi-Function: Ten percent of the FTEs in the program is attributable to integrated research-extension collaboration. The dollar equivalent of this share is 40,389 (5.04 FTEs x \$80,136 per FTE x .10)

Federal Goal 1

PLANT PATHOLOGY

Key Theme: Agricultural Profitability

Program Description

During the 1998 growing season, disease problems limited production of Leyland Cypress Christmas trees in parts of the mid-south including Mississippi, Louisiana and Alabama. The disease was identified as *Cercospora sequoiae* and traced to nursery seedlings from several locations in the tri-state area. Demonstrations were conducted and fungicides tested for control of this foliar blight on Leyland Cypress. Excellent control was achieved with currently labeled fungicides. The demonstrations took place over a three-year period from 1999-2001. Results were reported at the Mississippi-Louisiana annual Christmas tree growers meeting held in Biloxi, Miss. in 1999 and in Slidell, La. in 2000 and at the first annual Southern Christmas Tree Growers Association held in Cordele, Georgia in 2001. Growers in most southern states have been made aware of the problem and methods for controlling it.

Program Impact

Fungicides demonstrations and multi-state educational program have resulted in Christmas tree growers solving a very serious disease in their tree plantations.

Source of Funds

Smith-Lever 3b, c

Scope of Impact

Multi-state: Approximately 5% of the extension plant pathology specialist's time (.05 FTE) was devoted to this project. The dollar equivalent of this multi-state effort is \$4,007 (.05 FTE x \$80,136 per FTE).

Federal Goal 1

SOYBEAN AND GRAIN PRODUCTION

Key Theme: Agricultural Profitability

Program Description

Soybean and grain producers have indicated at extension advisory committee meetings, producer meetings, and grower association meetings that production of these crops is not profitable for the average grower. We began a program in 1994 to prove that profitability is possible if all extension recommendations are followed. This is a three-state collaborative effort of Louisiana, Mississippi, and Arkansas and is known as Soybean Research Verification Program. It involves demonstrating to growers what factors contribute to higher yields and lower costs. We incorporated the precision agriculture technology into the program in 1998 and continue this aspect to the present. Grant funds from both state and national promotion boards help fund recurring expenses such as increased travel, extra technical help, and equipment. We coordinate the programs with our neighboring states at special planning sessions in the spring, and at regional producer meetings such as the Tri-State Soybean Forum, Southern Soybean Conference, American Seed Trade Association meeting, and the Commodity Classic. These meetings are also used as a means of comparing and sharing results and reporting to stakeholders.

Program Impact

Growers in the program during this year produced 49% (16 bushels/acre) more soybeans than the average soybean producer in Louisiana. They produced them at a cost of \$3.46 per bushel, which compares very favorably with the price that they are currently receiving of about \$5.25 per bushel. These same trends have been observed in the other collaborating states. We have demonstrated that the most important contributions to higher yields and higher profits are: proper soil pH, use of correct varieties and maturity groups, optimum plant populations and row spacing, timely irrigation, crop rotation, and good management decisions. One of the practices which has been readily adopted by our growers in the last few years has been the use of border irrigation. We obtained the Irrigation Scheduling Computer Program from Arkansas Cooperative Extension Specialists, asked them to demonstrate it to our growers and county agents, and, as a result, it is widely used as a decision aid on soybean, cotton, and corn-irrigated fields. We report these results at parish and regional field days, at grower meetings in the winter, and through publications which every soybean and grain producer receives. Because of the success of the soybean research verification program in Louisiana, the rice growers have funded a similar program. Extension sugar, cotton, and hay specialists have also used similar programs in their work.

Source of Funds

Smith-Lever 3b, c; grants from the Louisiana Soybean and Grain Research and Promotion Board and the United Soybean Board.

Scope of Impact

Much of the work in this program is derived from collaboration with the above-mentioned states and with the other soybean and grain producing states. We report our findings to research scientists in the three-state area which helps them plan their work. We collaborate with agronomy, plant pathology, entomology, agricultural economics and agricultural engineering research scientists in making extension recommendations to growers and hold advisory committee meetings with them annually to plan research and extension activities. We use regional technical meetings to train agents and growers on practices associated with the above stated themes. Some of these meetings are: Southern Soybean Conference, Louisiana Association of Agronomists, Louisiana Plant Protection Association, Southern Weed Science Society, Tri-State Soybean Forum, Commodity Classic and the American Society of Agronomy.

Multi-state: About 30% of our efforts are multi-state. Meetings, publications, and recommendations derived from these multi-state efforts amount to \$81,979 (3.41 FTEs x \$80,136 per FTE x .30).

Multi-function: Integrated research-extension efforts amount to 35% of our total effort and include agent training, formulation of recommendations, publications, grower meetings and field trouble shooting. These multi-function efforts amount to \$95,642 (3.41 FTEs x \$80,136 FTE x .35).

Federal Goal 1

WEED SCIENCE EDUCATION PROGRAM

Key Theme: Agricultural Profitability

Program Description

Herbicide tolerant cotton varieties accounted for 75% of Louisiana's cotton acreage in 2001. Compared to 2000, herbicide tolerant cotton accounted for 67% of those varieties planted. While the increase in herbicide tolerant cotton acreage was not as significant as that from 1999 to 2000 (85%), it indicated a significant producer commitment to this technology.

There is critical need for herbicide application timing in herbicide tolerant cotton systems, and for controlling weeds that glyphosate is weak on.

A comprehensive extension education program for cotton producers was implemented. The goal of this program was to demonstrate the critical need for timely and precise application of herbicides to herbicide tolerant cotton and how to control weeds that glyphosate does not control by integrating new and existing herbicides into weed control programs. The following tasks were completed:

Three agent-training sessions were conducted to inform LSU Agricultural Center personnel, working in cotton production, of the latest weed control recommendations and new herbicides (18 agents); weed identification and herbicide symptomology; and drift symptomology (27 agents).

The state cotton weed specialist in cooperation with parish extension agents and private consultants conducted 15 on-farm demonstrations in the major cotton growing parishes.

Forty educational meetings and four field days were conducted to keep growers informed of recommended practices and efficacy of new herbicides.

A monthly cotton newsletter was distributed to producers, consultants, and agribusiness personnel throughout the growing season via electronic mail (300 contacts) and printed media (200 copies). The newsletter contained updates on recommendations and kept clientele informed of current events.

Ten news articles were written and distributed.

LSU AgCenter weed control publications were revised and updated.

A new publication "Managing Glyphosate Tolerant Cotton" was developed for Louisiana producers.

Three thousand copies were printed and distributed.

Program collaborators included other educational institutions within the state; Extension Service and Research faculty within the region's land grant institutions (University of Arkansas, University of Tennessee, Mississippi State, University of Missouri); USDA agencies; Louisiana Farm Bureau Federation; Louisiana Cotton Producers Association; professional organizations; Louisiana Department of Agriculture and Forestry; private industry; Cotton Incorporated.

Program Impact

Over 2,000 farmers, consultants, and industry personnel attended the field days and educational meetings.

Training sessions for LSU AgCenter personnel were attended by 100% of the Extension agents working in cotton production programs.

Extension specialists made six presentations at national meetings.

20 extension agents and/or specialists attended national meetings.

Extension agents and/or specialists conducted 15 on farm demonstrations.

Producers gained knowledge of how best to use glyphosate tolerant cotton, its potential benefits, and how to use this technology properly.

Source of Funds

Smith-Lever 3 b, c

Private industry

Scope of Impact

Multi-state: Delta Weed Workers Meeting - 4.5 FTE's with 20% effort were devoted to the program for a total multi-state effort of \$72,122 (4.5 FTEs x \$80,136 per FTE x .20).

Multi-function: Researchers and extension specialists collaborated on the development of publications, training of agents, consultants, agribusiness personnel, and farmers for a 100% multi-functional effort of \$667,533 (8.33 FTEs x \$80,136 per FTE x 1.0).

Federal Goal 1

WOOD PRODUCTS

Key Theme: Biobased Products

Program Description

Louisiana has historically lagged behind other southern states in terms of value-added wood processing. Accordingly, a comprehensive and cooperative education program has been developed to target individuals who are involved in the processing and in-service utilization of wood and wood products. The first step in adding value to wood is correctly identifying the species of wood. Drying schedules and end-use options of wood are largely governed by the species of wood. Therefore, a wood identification workshop has been held and several wood specimens are identified for interested parties throughout the year. Fundamental in adding value to wood is kiln drying. Accordingly, several lumber drying workshops have been held throughout the state in cooperation with LSU School of Renewable Natural Resources, Louisiana Tech University, Louisiana Forestry Association, and dry kiln manufacturers. A newsletter highlighting wood-moisture relationships such as lumber drying and wood decay is published quarterly that reaches a growing audience of over 1,000 individuals throughout Louisiana and North America. The program also educates wood business owners on sound business practices such as record keeping and marketing. In addition, homeowners are educated on proper end-use utilization of wood and wood products in and around the home, farm, or ranch.

Program Impact

More than 2,000 people received wood products educational information by either attending workshops, receiving a quarterly newsletter, on-site visits, email or telephone correspondence. The average value of

the FY 2001 workshops to the 50 individuals who attended was \$10,000 with a total value of \$500,000. Over one-half of the participants are now planning business expansions either for hiring additional employees or acquiring additional equipment and/or facilities.

Source of Funds

The program is supported with funds from RREA as well as registration fees from participants. Funds to support speakers at workshops and guest articles for the newsletter are from the individual's employer.

Scope of Impact

The program serves stakeholders on a state, regional, national, and international basis. The ideas and materials for the program are the result of attending, presenting, and interacting with peers at numerous professional conferences including, but not limited to, Forest Products Society, Society of Wood Science and Technology, American Wood Preservers' Association, and Louisiana Forestry Association. In addition, programming results from formal and informal research collaboration with colleagues at LSU as well as scores of other North American universities, Esnacifor in Honduras, Chinese Academy of Forestry and Nanjing Forestry University in China, participation in professional organizations such as IUFRO, IAWA, SAF, FPS, SWST, SBA, IRG, AWPA, and subscription to popular trade magazines such as Southern Lumberman, Wood-Mizer News, International Wood Collector News, Sawmill and Woodlot, Wood Technology, Wood and Wood Products, and Engineered Wood Journal.

Multi-state: It is estimated that .4 FTE was spent on this program and 10% is attributable to multi-state work. This is equivalent to \$3205 (.4 FTE x \$80,136 per FTE x .1).

GOAL 1
RESEARCH SUMMARIES

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: (Agricultural Competitiveness) Domestic and Trade

Goal: 1

P. Lynn Kennedy, Associate Professor, Department of Agricultural Economics and Agribusiness, Louisiana Agricultural Experiment Station

Issue: The general objectives of this project are to (1) determine the economic consequences of trade impacts stemming from changes in domestic agricultural and economic policies and to assess alternative strategies to improve the competitiveness of Southern agriculture, and (2) determine the economic impacts of continued reforms in trade treaties and agreements and to assess alternative strategies to improve the competitiveness of Southern agriculture.

What was done: In assessing the impact of domestic policies, the project focuses on three areas and their impact on Southern agriculture. These are (a) changes in U.S. domestic agricultural policies; (b) changes in foreign domestic agricultural policies; and (c) changes in monetary and fiscal policies. In assessing the impact of trade treaties and agreements, the project focuses on two areas and their impact on Southern agriculture. These are (a) challenges resulting from the agricultural provisions of World Trade Organization (WTO), and (b) effects of regional free trade and related agreements.

Impact: The expected benefits from the outcomes of the S-287 research project will accrue to stakeholders, peers, agribusinesses, policy/decision makers, and government through improved understanding of trade agreements and economic policy impacts on Southern agriculture. This project will provide information on the expected impacts of freer trade and alternative domestic policy regimes on Southern agriculture. Assessment of strategies will enhance the performance of Southern producers and entities in assessing opportunities for developing competitive advantages as well as developing strategies for improving the competitive advantage for Southern agricultural commodities and products. An important component of this project and end goal of this work is to provide road maps of policy options and consequences. Specific results and anticipated results are as follows:

- a. A national conference was held in conjunction with the Farm Foundation bringing together expertise to analyze agricultural trade policies in the new millennium. Various publications have been completed that provide information to policy-makers, producers, and researchers.
- b. Work was conducted to analyze the impact of increasing the sugar import quota for Mexico and Cuba. Results provide information to help producers and policy-makers to determine the impacts of various policy options.
- c. Research is underway in conjunction with Texas A&M University and the University of Georgia to analyze commodity specific competitiveness among countries in the North American Free Trade Agreement and the potential Free Trade Area of the Americas. Results will provide information to help policy-makers, producers, and researchers determine the feasibility and impacts of various policy options.

Sources of Funding: State, Hatch, Multi-state

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: AgCenter's New Herbicide-Resistant Rice Benefits Both Rice Farmers and the Environment

Goal: 1

Tim Croughan, Professor, Rice Research Station, Louisiana Agricultural Experiment Station

Issue: A new strain of rice developed by the LSU AgCenter will allow one of the worst weed pests in rice production to be controlled for the first time. The rice is called Clearfield Rice, and the herbicides that are

applied to this rice control the widespread weedy relative of rice called red rice. But the benefits of using this patented AgCenter rice go far beyond just improved weed control. Using Clearfield rice will allow farmers to change their farming practices in ways that will yield significant environmental benefits. One of those benefits will be a considerable reduction in the amount of herbicide rice farmers will release into the environment. While most rice herbicides are used at rates of several pounds per acre, the herbicide that is used with Clearfield rice is applied at a rate of only 2 ounces per acre. Also, while this herbicide is very effective against weeds, even in small doses, this potency does not carry over to other organisms. Only plants are affected by this environmentally friendly herbicide - humans, insects, and animals are not. Other benefits associated with the use of Clearfield rice and the accompanying herbicide include keeping our waterways cleaner. Current farming practices to help reduce red rice infestations produce muddy water, which sometimes escapes farmers' fields and pollutes waterways. Now herbicide will be used to kill the weed, and since farmers will not have to use muddy water in their farming practices, accidental releases into waterways will no longer take place. Also, farmers will need less water overall to grow a rice crop, which will both conserve water resources as well as reduce the farmer's costs in growing a rice crop. Under conditions of severe red rice infestations, use of Clearfield Rice is expected to increase farmer's profits by as much as \$100 per acre.

Impact: Projections for adoption of Clearfield Rice technology in U.S. rice production run as high as 1.3 million acres per year. This rice is the first herbicide-resistant rice to be grown commercially, both in the United States and overseas. The rice is not a genetically modified organism (GMO) and is approved for export and import without restriction into all countries worldwide. Of the approximately 430 million acres of rice grown globally each year, only 3 million of those acres are in the United States, and global marketing of Clearfield Rice and accompanying herbicides is being actively pursued. Worldwide, Dr. Croughan has some 50 patents pending or issued from the development of Clearfield Rice.

Sources of Funding: State, Rice Research Board

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Herbicide Resistant Crops Provide Economic and Environmental Benefits

Goal: 1

J. L. Griffin, Professor, Agronomy Department, D. K. Miller, Assistant Professor, and B. J. Williams, Assistant Professor, Northeast Research Station, P. K. Vidrine, Professor, Dean Lee Research Station, Louisiana Agricultural Experiment Station

Issue: In Louisiana, growing conditions are conducive to season long germination and emergence of weeds and subsequent competition with crops. In recent years, advances in molecular biology have resulted in the development of "transgenic" herbicide resistant crops. LSU AgCenter weed scientists have provided the expertise to investigate control strategies and economic benefits of these new technologies. The first such technology involved introduction of glyphosate (trade name Roundup from Monsanto) herbicide resistance into soybeans. We first evaluated Roundup Ready technology in soybeans in 1992 and corn in 1999. Subsequent advances have resulted in availability of Liberty Link soybeans and corn, both resistant to glufosinate the active ingredient in Liberty herbicide from Aventis; and Clearfield corn tolerant to the imidazolinone herbicide imazapyr and imazethpyg, the active ingredients in Lightning herbicide from BASF.

What was done: Because of the unique weed spectrum and diverse cropping systems in Louisiana, our approach has been to evaluate the fit of these various technologies considering efficiency, economics, and environmental implications. Ideally, herbicides should persist long enough to control weeds without residues negatively affecting the environment through surface or groundwater contamination. All of these technologies utilize herbicides applied to emerged weeds on an "as needed" basis. Additionally, herbicides associated with these various technologies are rapidly degraded chemically or by microbes, minimizing their negative effect on the environment. Research related to transgenic herbicide resistant crops conducted throughout the state has: 1) generated data related to yield potential of transgenic

soybean and corn varieties and adaptability to Louisiana. 2) determined weed spectrum, rates, and timings of herbicide application in various technologies; 3) evaluated the need for preemergence herbicides and tank mix partners with Roundup and Liberty for use in Roundup and Liberty Link technologies; 4) evaluated the impact of insecticide/Roundup mixtures on insect and weed control; 5) determined injury to rice, cotton, corn, and soybeans from off-target drift of Roundup and Liberty; and 6) evaluated economics of the various technologies.

Impact: Research in the area of herbicide resistant crops has provided alternative weed management options for Louisiana soybean and corn growers. Commodity prices in recent years have been at an all time low. Because net returns to the grower are based on the value of the marketed crop less the input cost, it is imperative that costs of production be minimized. Availability of the Roundup Ready technology has benefited Louisiana farm productivity and profitability by reducing the number and quantity of herbicides necessary to control problem weed species. In order to be competitive with costs of herbicides used in these new technologies, prices of competitive herbicides have been reduced also providing economic benefits to the producer. These new herbicide resistant technologies also have encouraged use of minimum tillage production practices that reduce soil erosion and subsequent contamination of surface waters with soil, fertilizers, and pesticides, and provided for use of alternative herbicides with different mechanisms of action to prevent or delay development of weed resistance. Integration of new weed control tactics in soybeans and corn will continue to be critical to maintaining high yields and profitability to Louisiana producers.

Sources of Funding: State, Hatch, Louisiana Soybean and Grain Research and Promotion Board

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Small Grain Breeding Program

Goal: 1

Steven Harrison, Professor, Agronomy Department, Louisiana Agricultural Experiment Station

Issue: Although wheat is not a major crop in Louisiana, it is an important crop, with an average of about 200,000 acres grown each year. Production costs for wheat are low, and the crop is harvested in the Spring when cash flow for production of other crops is limited. One of the constraints to wheat production in Louisiana is a lack of adapted varieties. There are no other commercial or public breeding programs in Louisiana, Mississippi, or Alabama, and there are only two commercial wheat breeding programs in the southern US. The LSUAC program was established to meet the demand of Louisiana growers for high-yielding, locally-adapted wheat and oat varieties. About 200 new hybridizations are made each year as the first step in the ten-year variety development process. LSUAC scientists carefully evaluate approximately 40,000 breeding lines each year and advance the elite few to the final stages of release.

What was done: The breeding program also investigates alternative uses for wheat and oats. Salt tolerance from wheat grown in Tajikistan has been crossed into the Louisiana breeding population with the intent to develop salt tolerant wheat populations that can be flown on to coastal sites and barrier islands as a cover crop to prevent erosion and provide wildlife feed in the winter. These populations are being evaluated at coastal sites in the spring of 2002.

Impact: LA422 wheat was released by this program in 1998 and is widely grown in Louisiana and Mississippi. This variety is high-yielding and resistant to leaf rust, the major disease of wheat. Genetic resistance to leaf rust means that growers do not have to spend approximately \$15 per acre spraying to control disease and is environmentally sound. LA422 is licensed to a Louisiana company which had sales in excess of 125,000 bags of seed with a net value approaching three-quarters of a million dollars for the 2001-02 growing season. A second wheat line is scheduled for release this spring.

LA939E45 oat is the third oat line released by the LSUAC since 1997. Another Louisiana-based seed company licensed this line in February 2002 and will market it as a forage crop for dairy and beef cattle,

for wildlife food plots, and a grain crop. This oat line has excellent grain yield and excels in forage production. Oats are widely used as winter pastures and in pasture blends across the Gulf region, particularly for dairy cattle. Oats are also over preferred other forages by deer and other wildlife.

In addition to developing new genetics and uses for Louisiana, the LSUAC conduct performance trials at seven locations each year to evaluate varieties and breeding lines from other programs. Data from these trials is the only unbiased source of information available to growers and seedsmen. Because most wheat and oat varieties perform poorly in Louisiana this information is essential to growers when making variety choices. There was a 17 bushel (23%) yield difference between the highest and lowest yielding commercially available entries in the 2001 trials.

Sources of Funding: State, Hatch, Louisiana Soybean and Grain Research and Promotion Board

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Public and Private Sector Partnership Provides Control of Damaging Sugarcane Disease

Goal: 1

Jeff Hoy, Professor, Plant Pathology Department, Louisiana Agricultural Experiment Station

Issue: Ratoon stunting disease, better known as RSD, has been the most damaging disease of sugarcane for many years. RSD is spread during planting and on equipment during harvest. It has no visible, external symptoms, except for stunted growth. This means that farmers do not know when they have RSD or when they are spreading it. RSD is controlled by planting healthy seedcane and making sure the disease is not introduced later. In the past, healthy seedcane was obtained by heat-treating stalks to be used for planting. This was inconvenient, did not provide complete control, and sometimes damaged the stalks. Therefore, heat treatment was never fully utilized by the industry and RSD was not effectively controlled, even though sugarcane cultivars could sustain up to 50% loss in yield.

What was done: During the last 15 years an alternative program has been developed through a partnership between the LSU Ag Center and a private company using tissue culture, or micropropagation, to produce healthy seedcane for farmers. The Louisiana Agricultural Experiment Station (LAES) was involved in initial evaluations of "Kleentek[®]" seedcane. LAES, USDA, industry and Kleentek representatives then developed regulations to provide quality assurance that certain standards would be met during seedcane production. This "certification" is the responsibility of the Louisiana Department of Agriculture and Forestry. In 1995, a lab for micropropagation of sugarcane was donated to the LSU Ag Center to be operated by Kleentek personnel. LAES has conducted a "local quarantine" since 1998 to insure that micropropagation begins with healthy plant material, and the LAES Sugarcane Disease Detection Lab was established in 1997 to provide an independent assessment of the RSD status of Kleentek seedcane and to monitor RSD in farmer fields. In addition, sugarcane varieties were evaluated for resistance to spread of RSD.

Impact: RSD testing for sugarcane farmers has provided an annual survey of the industry that documents a steady decrease in the occurrence of this most important disease. A survey conducted during 1984 found that 22% of all stalks tested had RSD. In the first four years of operation by the Sugarcane Disease Detection Lab, the frequencies of stalk infection were 12, 3, 2, and 1%. The factors associated with decreasing RSD frequency are use of Kleentek seedcane and increased cultivation of a high yielding variety, LCP 85-384, that is resistant to RSD spread. LCP 85-384 was developed through another public and private sector partnership, the Louisiana Sugarcane Breeding Program, that is cooperative between the LSU Ag Center, the USDA Sugarcane Research Unit, and the American Sugar Cane League. Because of this partnership and the working relationships developed between the LSU Ag Center, Kleentek, and the Louisiana Department of Agriculture and Forestry, it appears that we are winning the war against RSD, and this represents a major accomplishment for the Louisiana sugarcane industry.

Sources of Funding: State, Hatch, American Sugarcane League, and Kleentek

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Sugarcane Planting Method Keeps Pace With Change in Harvesting System

Goal: 1

Jeff Hoy, Professor, Plant Pathology Department, Louisiana Agricultural Experiment Station

Issue: A high-yielding variety, LCP 85-384, is allowing the Louisiana sugarcane industry to keep pace with lower sugar prices and increased production costs. However, more vigorous growth means that stalks often fall down, or lodge, by harvest time. The traditional method of mechanical harvest of whole stalks works poorly with lodged cane. This has resulted in a major shift to combine-type harvesters that pick up lodged cane then cut stalks into sections or “billets” that drop in a wagon traveling alongside. This new equipment is expensive, so most farmers cannot maintain both harvesting systems. This creates a problem, since sugarcane is grown from planted stalks, and in Louisiana, whole stalks were planted to reduce the impact of a disease, called “stalk rot.” Rotting of planted stalks in the ground can result in a plant cane crop failure, which is the most severe loss a sugarcane farmer can sustain. Billets are more likely to have problems with stalk rot. However, the situation has created intense interest within the sugarcane industry in developing methods for successful billet planting.

What was done: Research has focused on developing methods that will allow consistent success in billet planting. Direct disease control measures, such as fungicides, biological control, or film coatings to seal wounds that serve as starting points for disease, have not been successful. Sugarcane varieties vary in level of tolerance to billet planting, and this offers hope for a long-term solution through breeding and selection of new varieties. Varieties with increased vigor, such as LCP 85-384, have some ability to tolerate billet planting. Other factors, including planting long billets and an increased planting rate, improve billet planting performance. Certain harvesting practices can minimize the physical damage to billets. Good planting practices are extremely important when planting billets.

Impact: Plant cane stand failures have not occurred during eight years of experimentation when all the practices found to minimize stalk rot damage have been followed. Yields of billet and whole stalk plantings have been comparable in some experiments, and billet planting yields have been lower in others. Research results indicate billet planting will always have a greater risk of stand problems, and the highest total yields over time will be obtained with whole stalk planting. However, for farmers who no longer have the capability to plant whole stalks, practices have been identified that will maximize the chances of success with billet planting. Billet planting will probably be a better option than whole stalk planting for all farmers when seedcane is badly lodged.

Sources of Funding: State, Hatch, American Sugarcane League

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Genetic Improvement for Aquaculture

Goal: 1, 2 & 3

Terrence Tiersch, Professor, Aquaculture Research Station, Louisiana Agricultural Experiment Station

Issue: Aquaculture is rapidly expanding and the need for genetic improvement is increasing. Global competition is depressing prices and thus production efficiencies need to be improved. This project is intended to develop and apply techniques such as cryopreservation and controlled reproduction that have driven genetic improvement in livestock commodities. These techniques will enable development, maintenance, and distribution of genetic improvement within aquaculture industries. Genetic improvement will be necessary to assist production efficiency and reduce costs which will make Louisiana

and U. S. aquaculture industries more competitive in the global marketplace. Cryopreservation will ensure security of germplasm resources and offers the opportunity to develop a new industry within aquaculture for the storage and distribution of improved germplasm.

What was done: We continued studies in cryopreservation of sperm and identified biosecurity considerations for national and international transfer of frozen samples. We developed procedures for the first time in fish for intracytoplasmic sperm injection (ICSI), a technique that allows fertilization of fish eggs that would otherwise be impossible. We continued to develop improved hatchery techniques for fish and shellfish including artificial spawning of high-value marine species such as red snapper. We advanced and lengthened the spawning season of channel catfish by the heating of small broodstock ponds with geothermal water. The longer spawning season assists research and can be adapted for use by commercial producers of fingerlings.

Impact: Most aquaculture producers use unselected wild stocks for production. Considerable potential exists for improvement of commercial aquaculture species by use of techniques applied in the dairy, beef, poultry and swine industries. This project is intended to establish techniques to develop, maintain, and distribute genetic improvement for aquaculture species. We are addressing all of these approaches generically to ensure that they can be applied to fresh water and marine species of fish and shellfish. In all, these genetic techniques can be brought to greatest advantage in combination with each other, and in linkage with other aspects of current husbandry practices such as nutrition and production systems. As techniques such as these become established, aquaculture will become more like modern livestock industries, and a new industry, potentially worth millions of dollars worldwide, will develop for the maintenance and distribution of improved germplasm for aquaculture.

Sources of Funding: Louisiana Sea Grant College Program, Louisiana Catfish Promotion and Research Board, U. S. Department of Agriculture

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Genetic Variation for Growth, Carcass, and Tenderness Traits in Brahman Steers

Goal: 1

Don Franke, Professor, Animal Science Department, Louisiana Agricultural Experiment Station

Issue: A general assumption in industry is that all high Brahman-influence slaughter steers and heifers do not reach industry desirable carcass quality grades and the meat from them is tough. This results in a price discrimination at weaning for Louisiana and Southeast cattle producers that utilize Brahman genetics. This situation presents a dilemma for our cattlemen because Brahman-influenced cattle are more adaptable and productive in the Southeast than non-Brahman influenced cattle. The 12 Southeastern states, including Texas, have approximately 30 percent of the U.S. beef cow population and a sizable portion of the cows carry Brahman influence.

What was done: Samples of bull calves (n=440) from Brahman herd sires (n=68) of Louisiana Brahman breeders were purchased at weaning in order to study growth, carcass, and tenderness traits, to estimate genetic variation, and to predict Expected Progeny Differences for Brahman sires utilized by Louisiana breeders. Calves were managed similarly to typical feeder calves produced by Southeastern cattlemen. Bull calves were castrated, dehorned, vaccinated and backgrounded until ryegrass grazing was available. Steer calves were fed in a South Texas feedlot and harvested at typical feedlot steer endpoints of 500 to 500 kg and 7 to 10 mm backfat. Standard carcass data were collected and a primal rib was obtained to study tenderness. Two 2.54-cm-thick steaks were cut from the 12th rib interface of the primal rib and aged for 7 or 14 d. Tenderness was measured by grilling steaks to 70^BC and then shearing six 1.27 cm cores taken parallel to the muscle fiber orientation on an Instron Universal Testing Machine with a Warner-Bratzler shear device.

Impact: Average growth and carcass traits on all Brahman steers compared favorably to steers finished in South Texas feedlots. Average daily gain was 1.5 kg/d which is slightly less than the average US steer but greater than Louisiana Calf to Carcass crossbred steers fed in the Oklahoma Panhandle. Ribeye area was comparable to a typical feedlot steer. About 35 percent of the carcasses graded Choice which is lower than the US average grade but higher than the 28 percent of Louisiana Calf to Carcass crossbred steers. Average shear force of 7- and 14-d aged steaks was 4.5 and 3.6 kg, respectively. Twenty-one of 68 sires had progeny that averaged shearing 3.6 kg or less, the level that is acceptable for restaurant trade. Ranges of EPDs of the 68 sires for carcass weight, ribeye area, and fat thickness were similar to those published in Sire Summaries of the Angus, Simmental, Gelbvieh, and Hereford breed associations. Heritability of shear force after 14 d aging was 30 percent, a moderate level that suggest selection for increased tenderness will be effective in the Brahman purebred industry. Improving tenderness in Brahman influenced cattle by 10 percent could increase the value of a weaned calf by as much as \$40, if the producer is actually paid for the improvement.

Sources of Funding: Hatch, State, and Louisiana Beef Industry Council

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Cool-Season Annual Forages Important to Louisiana's Livestock Industry

Goal: 1 and 4

Brad Venuto, Professor, Southeast Research Station, Louisiana Agricultural Experiment Station

Issue: More than 300,000 acres of annual ryegrass are grown each year in Louisiana. This represents over 9,000,000 lbs of seed sold annually with a retail value in excess of \$3,000,000. Since most of the acreage grown to cool-season annual grass is grazed, on farm yield estimates are difficult to obtain and producers need a valid means of differentiating among available varieties. Similarly, on-farm value of this commodity is difficult to measure. However, a conservative yield estimate of 2 tons of forage per acre across 300,000 acres, valued at \$50 per ton, equates to an approximate farm value of \$30,000,000. If superior cultivars can be identified for these producers, yields can be increased without additional economic inputs or additional environmental impact.

What was done: In 1985, the LSU Agricultural Center initiated a coordinated intra-state multi-location cool-season annual forage variety testing program. These trials are open to industry and public participants and evaluate current commercial varieties and new experimental lines. Since its inception, over 80 varieties have been evaluated at six LSU AgCenter Research Stations throughout Louisiana. These varieties have been evaluated for yield, quality, disease resistance and cold tolerance. This information is freely and readily available to all producers within the state (<http://www.agctr.lsu.edu/forage/>). Fifty-four varieties and experimental lines of cool-season annual forage grasses were evaluated in multi-location trials during 2001. Annual ryegrass (28 entries harvested four to six times at six locations), cereal rye (15 entries harvested four to five times at three locations), and oat (11 entries harvested four or five times at two locations) were evaluated for dry matter yield.

Impact: The results from the LSU AgCenter's annual ryegrass evaluations are used by extension personnel to develop a recommended list of varieties for Louisiana. Selection of a superior variety can result in a significant production increase for the average producer. This gain will vary depending upon the location and the particular growing season, but can be substantial. Based upon 2001 LSU AgCenter results, a producer planting the top yielding newer variety (averaged across six locations) relative to one of the commonly grown older varieties, could expect a 10% increase in yield. The potential increase in farm value for a producer, averaging 4 tons of forage dry matter per acre on 100 acres, is over \$2,000. The only additional expense is an increased seed cost of less than \$200. In seasons of severe winter cold or when conditions for development of diseases, such as rust, are optimum, the selection of an appropriate variety becomes far more important. Without the information provided by the LSU Agricultural Center, producers would not be in a position to optimize their returns from this important commodity.

Sources of Funding: Variety testing fees, Hatch and State.

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Stocking Rate and Grazing Management Affects Beef Cow-calf Productivity

Goal: 1

Wayne Wyatt, Associate Professor, Iberia Research Station, Louisiana Agricultural Experiment Station

Issue: Approximately 80% of the beef cattle farms and ranches in Louisiana have fewer than 50 cows, yet 60% of the state sales revenues generated by beef are from relatively small, part-time beef producers. Estimated returns above specified costs per cow are relatively less for these farmers than for those having larger herds. Most of these Louisiana beef producers annually operate on a fixed acreage of pasture resources with a fixed herd size. There is considerable interest in short-duration, rotational-stocking grazing management systems as a means of managing these resources. Rotational-stocking has the potential to allow more cows per acre than the conventional, continuous-stocking grazing management system. However, both startup and management costs are greater for rotational grazing. A meaningful comparison of continuous- and short-duration, rotational-grazing schemes for beef producers in the Southern and Gulf Coast regions should be made within the context of the following criteria, 1) for cow-calf production, 2) on a year-around basis, 3) at fixed or set stocking rates throughout the year, and 4) at their respective optimal stocking rates as defined by maximum profit potential (i.e., net returns).

What was done: The following grazing schemes were imposed on individual pastures within sets of four 16-acre and four 10-acre pasture groups: continuous stocking grazed at a low, medium, and high stocking rate (CL, CM, and CH) and rotational stocking grazed (eight paddocks) at a high stocking rate (RH). Brangus cows and their spring-born suckling calves were used to populate treatment pastures on a year-round basis for three years. Low, medium, and high stocking rates were .5, .8, and 1.1 cow-calf pairs per acre. This research represents the first phase of a multiple year study designed to compare continuous- and rotational-stocked pastures in terms of animal performance and net returns of a cow-calf production system.

Impact: Cows on rotationally-stocked pastures lost more weight and body condition annually than cows on continuously-stocked pastures when both treatments were stocked at the high stocking rate. Increasing stocking rate had a depressing effect on calf preweaning daily gain (2.2, 2.1, 1.8 and 1.78 pounds) and weaning weights (561, 534, 468, and 445 pounds for CL, CM, CH, and RH, respectively). In terms of pasture productivity, stocking rate increased weaning weight per acre (272, 430, 506, and 491 pounds for CL, CM, CH, and RH, respectively). Calf performance on rotationally-stocked pastures tended to be lower than that on continuously-stocked pastures when both treatments were stocked at the high stocking rate. Given the lower cow performance and the somewhat lower calf performance of rotational compared to continuous grazing treatments, producers should question the additional expenditures of time and money necessary to facilitate rotational grazing management of their pasture resources.

Sources of funding: State

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Improving Competitiveness of Small Livestock Enterprises

Goal: 1

Ken McMillin, Professor, Animal Science Department, Louisiana Agricultural Experiment Station

Issue: Goat meat is widely consumed worldwide and its popularity is being reflected in the growing populations of ethnic consumers in the U.S. There are increased numbers of meat goats being produced, particularly in the southeast, but the marketing and distribution channels are underdeveloped. Goats are usually raised as a small livestock enterprise and there is much segmentation of production and market channels. There are no standards for live animals or carcasses or common market terminology to facilitate transactions between buyers and sellers and to allow for communication of price reporting on

goats with common characteristics. Development of grades or criteria for goats and goat meat, as has been done for other livestock species, would allow, enhance, and encourage growth of meat goat enterprises at each stage in the meat production system. The producers, processors, and consumers of goat meat would benefit from the improvements in the marketing communication system. Purchase of meat as cuts rather than as entire carcasses or small cubes would allow differential pricing based on relative value of meat from different animal parts.

What was done: Collaborative research between land-grant scientists at 1862 and 1890 institutions, USDA marketing personnel, and managers in the Louisiana Department of Agriculture and Forestry was initiated to develop live meat goat selection groups, goat carcass evaluation criteria, and standardized cuts. Live goats representing the sex classes, ages, breed types, and conformation groups of goats being used for meat were purchased. Linear measurements and subjective evaluations by trained personnel were taken on each live goat before sacrifice. Chilled carcasses were evaluated for representative criteria before being fabricated into primal meat cuts suitable for foodservice or institutional firm purchase. Four selection classifications were developed to group live goats with similar conformation types and meat characteristics. Uniform criteria to evaluate the lean color, degree of fatness, and conformation of goat carcasses were proposed. A series of standardized cutting procedures and cut specifications were developed as institutional meat purchase specifications (IMPS) for goat meat in conjunction with USDA agricultural marketing service personnel.

Impact: The research has resulted in several USDA market news reporters reporting goat prices using the live goat selection classifications to segregate goats of different types. Additionally, market news personnel collaborating in the research are now training market news reporters and supervisors to use the live goat selection groupings in their market reports. The carcass evaluation information is being linked to lean cut yields and sensory evaluation to determine the consistency and predictability for industry use. The USDA has finalized the IMPS for goat meat and these are now available for processing, retail, and foodservice institutional firms to use in standardizing cuts and facilitating the market transactions of primal and retail cuts of goat meat.

Sources of Funding: Hatch, State, USDA Federal-State Marketing Improvement Program, Louisiana Department of Agriculture and Forestry

GOAL 2

LSU AgCenter Goal 2 is to provide a safe and secure food and fiber system which specifically will improve food safety and eliminate food-borne risks.

Research Reports

Research in aquaculture to enhance the immune system in channel catfish has been directed at elimination of the need for antibiotics and medicated feed. If successful, production costs will be lowered and antibiotic strains of pathogenic bacteria will no longer be a concern. A healthier product for consumers will be provided, with an increased profit margin for catfish farmers.

Ozone and other antimicrobial products were examined as techniques that would be used in conjunction with vacuum and gas flushing steps during the final packaging stages for meat and poultry products. Results revealed ozone has the potential to destroy pathogenic bacteria within certain environmental conditions and ozone levels. Ozone and other methods also were investigated for detoxifying aflatoxin, a carcinogenic compound that sometimes is prevalent in corn and cottonseed.

Extension Reports

Significant accomplishments include:

- Through the “Safe Food Handler” training program, 1,395 food handlers at fairs, festivals, schools, day care centers and other food service establishments gained knowledge of safe food handling. Participant evaluations following food safety presentations across the state showed that over 65% had gained knowledge of food safety practices and intended to follow those practices.
- A total of 106 attendees from seafood processing plants received training in hazardous analysis of critical control points (HAACP) and sanitation control procedures (SCP). As a result, seafood processors better understand and can comply with state and federal regulations and prepare HACCP plans and records.

Total extension FTEs on Goal 2 programs were 6.6 for a total expenditure of \$528,898. Of this amount, total multi-state expenditure was estimated at \$158,669.

Total Extension FTEs on Goal 2 programs were 6.6 and 198,318 educational contacts were made.

GOAL 2
EXTENSION SUMMARIES

Federal Goal 2

HACCP - FOOD SAFETY

Key Theme: HACCP

Program Description

As part of all HACCP training, stakeholders provide evaluations of training. This evaluation process is used to improve and enhance the process. All seafood processors are required to attend HACCP training. The major problem associated with HACCP training is the length of time required for the training. Training was conducted in Baton Rouge, the most central location in the state. In addition, Sanitation Control Procedures (SCP) were also provided. SCP training is not required, but is useful in gaining a better understanding of HACCP. In 2001, three HACCP and three SCP training programs were scheduled. HACCP training is three days and SCP training is one day. In the three HACCP workshops, there were a total of 50 attendees. For SCP, there was a total of 56 attendees. There were several groups that cooperated in providing the training. The State Food and Drug provided speakers and the US Food and Drug Administration provided speakers at all training sessions.

Program Impact

As a result of both HACCP and SCP training, seafood processors better understand requirements of the regulations. They learned to prepare HACCP plans and records associated with sanitation. As a result of this training, processors are now prepared to comply with complex state and federal regulations. In addition, food processors are in a position to ensure safely processed seafood and to understand the principles involved and the US Food and Drug Administration provided speakers at all training sessions.

Source of Funds

Smith Lever, 3 b, c (federal funds)

Scope of Impact

State only HACCP, SCP training and plant visits.

Multi-state:

Multi-function:

Federal Goal 2

NUTRITION

Key Theme: Food Safety

Program Description

Research shows that proper food handling and preparation can prevent 90 to 95 percent of foodborne illnesses. LSU AgCenter extension agents and specialists have provided food safety information to Louisiana citizens, childcare providers and food handlers. Two extension specialists and 38 extension agents completed the National Restaurant Association SERVSAFE safe food handler program and have been registered as food safety instructors with the Louisiana Department of Health and Hospitals, Office of Public Health, and the National Restaurant Association.

The goal of the program is for Louisiana residents and food handlers to improve food safety by controlling or eliminating foodborne health risks.

Teaching objectives to reach this goal are for (a) consumers to follow recommended food safety practices, and (b) food handlers to follow recommended safe food handling practices.

"Safe Food Handlers" and "Safe Food, Healthy Children" curricula developed to achieve the teaching objectives include lesson plans, videos, slides, fact sheets.

Program Impact

In FY 01, 123,276 adults gained knowledge directly about recommended food handling practices. In addition, thousands of citizens gained this knowledge through nearly 600 mass media efforts, including news articles, radio, TV, and circular letters. Through the "Safe Food Handler" training program, 1,395 food handlers at fairs, festivals, delis, schools, day care, nursing homes, and other food service establishments gained knowledge on safe food handling.

More than 125 New Orleans Jazz and Heritage food service personnel participated in a special safe food handler training and, as a result, fewer violations were cited at the 2001 festival than in the history of this annual event.

Clientele evaluations following food safety presentations showed that:

83% (531 of 642) increased their knowledge of causes of foodborne illness. 17% indicated they already knew this information.

81% (249 of 293) learned that using a food thermometer is the best way to determine if a food is properly cooked. 19% indicated they already knew this information.

72% (285 of 395) reported they would adopt recommended food safety practices – cooling large batches of food in ice water before refrigerating.

63% (203 of 332) reported they would defrost food only in the refrigerator, under cold water or in microwave.

76% (232 of 296) reported they would use a food thermometer and temperature chart to determine doneness.

65% (401 of 622) reported they would wash hands with hot soapy water before handling food to reduce the risk of foodborne illness.

Source of Funds

Smith-Lever 3 b, c; USDA CSREES Restricted Fund S/L

Scope of Impact

Multi-State: The ideas and materials for this program are a result of the USDA food safety emphasis. In FY 2001, 6.6 FTEs were spent on food safety, resulting in 123,276 contacts. Based on an FTE cost of \$80,136, the total cost of the program was \$528,898. Of this effort, 30% is involved in the acquisition and sharing of information through multi-state efforts, including pursuit of CSREES food safety funding. The dollar equivalent of multi-state work is \$158,669 (6.6 FTEs x \$80,136 per FTE x .30)

Multi-function: Contributions from research counterparts included assistance in determining program needs through focus groups, meetings, development of nutrition education materials and agent training.

**GOAL 2
RESEARCH SUMMARIES**

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Enhancing Disease Resistance in Aquaculture Species to Eliminate the Need for Antibiotics.

Goals: 1, 2, and 5

Richard Cooper, Professor, Department of Veterinary Science, Louisiana Agricultural Experiment Station

Issue: Aquaculture continues to be one of the fastest growing segments of agriculture in the United States. Channel catfish culture generates more revenue than any other species, but production costs are driven up by bacterial diseases that result in mortality or weight loss, costs associated with medicated feed, and delayed time to harvest. The use of medicated feeds to combat these infections is expensive and, if misused, can result in antibiotic strains of bacteria for which no treatment is available.

What was done: We have demonstrated that a single gene encoding an antimicrobial peptide (cecropin B) is sufficient for preventing disease (*Edwardsiella ictaluri*) and mortality in cultured channel catfish. Delivery vectors have been constructed that allow efficient production of fingerlings carrying cecropin B, and when exposed to pathogenic bacteria, these fish continue to thrive. The success of this project has led to development of methods to produce sterile fish that can be used in aquaculture ponds without the fear of contaminating natural populations should they escape. The first experiments in fish were conducted in 2001 using goldfish as a model species. Using a gene that produces a sterilization peptide, we have depleted the ovaries and testes in sexually mature fish. An added benefit appears to be increased weight gain in these fish *without the need for growth hormones*. In 2002, a second experiment in goldfish is planned as is the first experiment in channel catfish.

Impact: By enhancing the immune system in channel catfish, we can potentially eliminate the need for antibiotics and medicated feed. Profitability will be increased since there will be no mortality or weight loss due to disease, no increased production costs associated with medicated feeds, and a product free of antibiotics (or exposure to antibiotics) can be provided to consumers. Producing sterile fish allows existing ponds to be used without expensive modification and prevents breeding with native catfish should these fish escape due to flooding or accidental release. The results of this project will provide a healthier product for Louisiana consumers, provide an increased profit margin for catfish farmers, and provide a genetically superior strain of catfish without years of strain selection and propagation.

Sources of Funding: Hatch, USDA Special Grants in Aquaculture, Louisiana Catfish Promotion and Research Board

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Closing the Food Safety Gap on Meat and Poultry Products

Goal: 2

Ken McMillin, Professor, Animal Science Department, Louisiana Agricultural Experiment Station

Issue: Many intervention and control strategies are available to reduce the growth and toxin production of pathogenic microorganisms on meat and poultry. Prior to the food packaging and package sealing stage, management systems can reduce pathogen contamination of live animals, intervention techniques can eliminate or prevent growth of pathogens on carcasses and cuts, and processing techniques can destroy or inhibit pathogen proliferation. The last opportunity for contamination, and therefore a logical position for a pathogen prevention process, is during the packaging operation. There is potential for environmental or human contamination of the final raw or cooked product immediately prior to packaging because most meat and poultry are often conveyed from a refrigerated area to the packaging area and manually loaded into the packaging materials and packaging machines. A procedure to decontaminate

products at the time of packaging would provide a complementary method to those at other stages of production and processing to prevent the risk of foodborne illnesses to consumers.

What was done: Ozone and other antimicrobial agents that could be in aerosol form were proposed as a technique that could be used in conjunction with the vacuum and gas flushing steps during final product packaging to provide inhibition or destruction of pathogenic microorganisms. Several experiments were conducted with inoculated media plates, pork muscles, ground beef, and beef strips. Exposure of pork cubes to highly humidified ozone of 2,700 ppm gave a one log reduction in *E. coli* counts and a two log reduction in *Listeria ivanovii* counts. Exposure of ground beef patties to humidified 2,500 ppm ozone gas gave similar color and reduced coliform pathogen-indicating microorganism types compared with storage in an anoxic, oxygen-free atmosphere. Leaving ozone in the package of ground beef to deteriorate into oxygen reduced concentrations of generic *E. coli* nonpathogenic bacteria compared with removal of the ozone before package closure. Exposure of ground beef patties to dry ozone at 500 or 3,500 ppm decreased *E. coli* colony forming units by 0.5 logs. Linking the ozone gas exposure to other microorganism growth hurdles such as low temperature or carbon dioxide environments further reduced the growth of microorganisms. Products with relatively smooth surfaces like ham slices had greater microbial destruction of microorganisms than products like ground beef that had rougher or more irregular surfaces.

Impact: These studies indicated that ozone has the potential to destroy pathogenic bacteria within specific environmental conditions and ozone levels. Two patents were granted that protect the intellectual property while the technologies are being adapted for industry use. The use of antimicrobial agents during the packaging process will provide the final line of defense needed to complement other bacterial destruction techniques during production and processing to prevent foodborne illnesses in meat and poultry products.

Sources of Funding: State, Hatch, Louisiana Beef Industry Council, National Pork Producers Council.

GOAL 3

LSU AgCenter Goal 3 is to achieve a healthier, more well-nourished population by improving dietary quality, food quality, and food choices of Louisiana citizens.

Research Reports

Research programs addressing the prevention of obesity and osteoporosis, functional foods, and “medicinal plants” continued during 2001. The effects of federal welfare reform legislation (i.e., Personal Responsibility and Work Opportunity Act of 1996) on nutritional status of adults and their families were examined. The research focused on food security, food intake patterns based on monthly resource cycles, nutritional status, health and disease, and obesity. Data revealed a positive correlation with obesity and food insecurity in women related to a poor diet, high in fats.

Both food stamp users and non-users were overweight, with poor diet quality a likely contributor to overweight status. Nutrition education, personal behavior, nutrition-related diseases, and lack of health care coverage all will be factors in whether those affected by the legislation will be able to support their families in a secure financial manner.

Extension Reports

Significant accomplishments include:

- In the EFNEP Program, food recall data indicate that enrolled families made positive dietary changes. Significant increases were made from the time of enrollment to graduation from the program in consumption of milk (8.8% to 19%), fruits (16.1% to 41.6%), and vegetables (27.6% to 42.7%). In addition to better diets, homemakers were managing their food dollars more wisely, by comparison shopping and planning meals.
- In the FNP Program, over 140,000 individuals were reached by nutrition assistants in face-to-face contacts with information on nutrition, diets and health, and food buying. Over 70% of the clientele said they would comparison shop, eat more grains and cereals, and consume a diet lower in sodium.
- The Diabetes Awareness Education Recommendations (DEAR) Program reached over 5,400 people through workshops in 34 parishes. An estimated 400,000 contacts have been made through the mass media. In follow-up surveys, over 80% of participants were still following at least one of the recommended behaviors they had committed to adopt.

Total Extension expenditure on Goal 3 programs, including EFNEP paraprofessional effort (58.68 FTEs valued at \$40,000 per FTE), was \$3,831,318. Of this amount, total multi-state expenditure was estimated at \$412,700 and multi-function \$320,143.

Total extension FTEs, including EFNEP (58.68 FTE), were 77.2 and 1,361, 797 educational contacts were made.

**GOAL 3
EXTENSION SUMMARIES**

Federal Goal 3

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

Key Theme: Human Nutrition

Program Description

Sixteen Louisiana parishes currently participate in the Expanded Food and Nutrition Education Program (EFNEP). EFNEP works cooperatively with other food assistance programs such as food stamps, WIC, and commodity foods. Sixty seven EFNEP nutrition assistants conducted a special nutrition education program for low-income families with young children. Through EFNEP , families learned what they need to eat for good health, how to make more nutritious selections, how to be better shoppers, and how to better extend their resources. A planned curriculum of 12 lessons is taught to enrolled participants and their children in small groups. To graduate from the program, participants must complete a minimum of 10 of the 12 lessons.

Program Impact

EFNEP helped families meet the overall objective of the program of improving the nutritional value of diets of disadvantaged families, especially those with young children. Participation in EFNEP improved the nutritional value of homemakers' and their families diets. Food recall data indicate that 93% of the EFNEP homemakers made positive dietary changes. The percentage of homemakers consuming the recommended 2 or more servings of milk daily rose from 8.8% to 19%. At the beginning of the program only 16.1% consumed two or more servings of fruits a day compared to 41.6% at the end. Only 27.6% had 3+ servings of vegetables a day at the beginning of the program versus 42.7% at the end. In addition to a better diet, homemakers were managing their food dollars better. Comparing prices during shopping increased from 17 to 39%, use of grocery list increased from 8 to 25%, and planning meals increased from 5 to 23% at the end.

Source of Funds

Smith-Lever 3b, c

Scope of Impact

In FY 2001, 67 EFNEP nutrition assistants in 16 parishes reached 2,599 enrolled program families, 11,345 youth, and 559 volunteers. An estimated 58.68 paraprofessional and professional FTEs were spent on the EFNEP Program.

Federal Goal 3

FOOD AND NUTRITION PROGRAM (FNP)

Key Theme: Human Nutrition

Program Description

Extension Family and Consumer Science agents covering 64 parishes and 15 nutrition assistants in targeted parishes conduct FNP (Family Nutrition Programs) to assist food stamp recipients and potential food stamp recipients improve their diets and budget their food dollar. All 64 parishes have been actively involved in community education and outreach programs. Fifteen parishes have a paraprofessional to help conduct the FNP program. The major topics taught include nutrition education, food buying, food safety, child feeding, and managing time and money as it relates to food buying and nutrition. Reported sites for the FNP outreach program included Head Start, Council on Aging, other senior citizen groups, Title I, day care providers workshops, grocery stores, teen parents groups, commodity distribution sites, health units, health fairs, public housing, libraries, and mental health.

Program Impact

Extension agents in 64 parishes and the 15 FNP nutrition assistants in targeted parishes reached over 144,705 individuals in face-to-face contacts during FY 2001 with information on nutrition, diet and health, food safety, and food buying. Impact statement data from parishes showed that 75% of clientele reported they would do comparison-shopping to get more for their food money. 70% of clientele reported they would eat more whole grain breads and cereals. Another 75% of clientele reported they would consume a diet lower in salt and sodium.

Source of Funds

Family Nutrition Program (FNP), Food Stamp Nutrition Education Program funded by USDA, Food Nutrition Services (FNS), through the Louisiana Department of Social Services, Office of Family Support, Food Stamp

Scope of Impact

An estimated 5.3 FTEs were spent on the Family Nutrition Program. Based on an FTE cost of \$80,136, the total cost of the program was \$424,720. Of this effort, \$127,416 or 30% is involved in the acquisition of sharing of resources and information through multi-state efforts. Contributions from research counterparts included assistance in determining program need through focus group meetings, development of nutrition education materials, agent training and presentations for clientele, and amounted to \$106,180. (25%).

Federal Goal 3

HUMAN HEALTH

Key Theme: Human Health

Program Description

According to the Louisiana affiliate of the American Diabetes Association, 264,134 people in Louisiana have diabetes. Of this number, about one-third are undiagnosed. Diabetes is the leading cause of adult blindness, end-stage renal disease, and nontraumatic amputation. The annual cost of diabetes in Louisiana is more than \$2.25 billion each year including direct cost (medical expenses) and indirect cost (productivity loss). Research shows that lifestyle practices, including a healthy diet and physical activity, can prevent or delay the development of the most common type of diabetes, type 2, occurring in about 95% of cases, and prevent the devastating complications of diabetes.

Following a healthy lifestyle reduces health risks. Curricula based on needs assessments, national nutrition and health goals, and science-based research focus on encouraging healthy lifestyles, promoting food safety, assisting vulnerable groups such as pregnant and low-income women, and creating awareness of environmental hazards.

The Diabetes Education Awareness Recommendations (DEAR) program was developed to improve the health and well-being of Louisiana families by promoting the adoption of recommended diabetes self-management goals including eating healthfully, exercising regularly, monitoring blood sugar levels, and visiting health professionals. Extension agents enlisted support for the DEAR program by involving community health professionals and leaders and conducting educational sessions for clientele using materials developed by the DEAR team.

Program Impact

DEAR has been implemented in all 64 parishes, and workshops have been conducted in 34 parishes for more than 5,400 people. Besides the workshops, an estimated 400,000 contacts have been made statewide. These contacts received information through media outreach (television, radio, and news articles) and walk-by displays at libraries, health fairs, hospitals, malls, grocery stores, and congregate

feeding sites. Individuals participating in the DEAR program learned to better manage their diabetes by following recommended practices. Six months following their participation in the lesson series, 128 participants who had committed to adopt at least one of the recommended behaviors were contacted. Of this number, 102 or 82% reported they were still following at least one of the behaviors they had committed to adopt. The behaviors included: (1) visit my doctor and/or health professional regularly (2) eat healthfully (3) exercise regularly (4) achieve or maintain a healthy weight (5) maintain blood glucose levels as recommended by physician.

In addition to the DEAR program, the Human Health program focused on clientele following the dietary guidelines to prevent or decrease the incidence of chronic disease. Evaluation of learning outcomes following workshop presentations using standardized survey instruments revealed positive learning gains. The extent to which specific healthy practices were learned is shown in the table below:

Health Practice Learned	No. of Respondents	% learning practice	% who already know
Completing 30 days of moderate exercise most days of the week.	543	62	35
Including fruits and vegetables in diets.	887	62	34
Choosing a diet moderate in sugar.	692	54	42
Consuming 2-3 servings of low fat dairy products a day	674	64	32
Consuming a diet lower in sodium and salt.	567	54	42
Eating less fat and saturated fat.	727	67	26
Reading nutrition labels to make healthy food choices.	547	70	27

The evaluations included intent to change personal behavior. The percentages of workshop participants who indicated they would change various behaviors are shown below.

Personal Behavior Change	No. of Respondents	% intending to practice	% already practicing
Begin a program of regular physical activity	604	46	25
Consume no more than 30% of calories from fat and less than 10% (of total calories) from saturated fat.	772	73	21
Choose a diet moderate in sugar	659	61	33
Consume a diet lower in salt and sodium	559	58	37
Choose a diet with plenty of fiber from grains, fruits and vegetables	791	67	29

Source of Funds

Smith-Lever 3b, c; Family Nutrition Program - funded by USDA, FNS, through the Louisiana Dept. of Social Services, Food Stamp Program

Scope of Impact

Multi-state: In FY 2001, an estimated 8.9 FTEs were spent on diabetes and health education, resulting in 400,000 Contacts. Based on an FTE cost of \$80,136, the total cost of the program was \$713,210. Of this effort, 40% is involved in the acquisition of sharing of resources and information through multi-state efforts, valued at \$285,284. (8.9 FTEs x \$80,136 per FTE x .40).

Multi-function: Contributions from research counterparts included assistance in determining program needs through focus groups, meetings, development of nutrition education materials, agent training and presentations for clientele. It is estimated that 30% of FTE allocations to this program is attributable to multi-function work. The dollar equivalent of multi-function work is \$213,963 (8.9 FTEs x \$80,136 per FTE x .30).

**GOAL 3
RESEARCH SUMMARIES**

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Impact on Economic Development and Quality of Life for People and Communities;
Impact on a Healthy, Well-Nourished Population

Goal: 3 and 5

Pam Monroe, Professor, School of Human Ecology, Louisiana Agricultural Experiment Station

Issue: The general objective for this multi-state project is to describe the effects of federal welfare reform legislation (i.e., Personal Responsibility and Work Opportunity Act of 1996 or PRWORA) on the targeted adult participants (usually the mothers) and their families (most typically, their children), as well as on the rural communities in which they live and seek employment. In the first year pilot study a more specific objective has been to identify the micro-level obstacles faced by welfare recipients as they attempt to move from welfare reliance to wage-based self-sufficiency, and the impact on family functioning of compliance with PRWORA mandates. With funding from the USDA Economic Research Service, researchers focused particularly on food security of families exiting welfare programs. Qualitative pilot data were collected in two of the seven participating states in 2001. The project is proceeding in the establishment of a methodology and protocol that will be useful in related studies. Findings have been shared with key administrators and policy makers, and researchers will continue to participate in discussions of the reauthorization of the PRWORA legislation scheduled for 2002.

What was done: Researchers in two southern states interviewed welfare reliant, formerly welfare reliant, and working poor women to identify the micro-level barriers to their progress toward economic self-sufficiency. Comparative information was generated and is available on the website of the Southern Rural Development Center (<http://ext.msstate.edu/srdc>). We focused on food security, food intake patterns based on monthly resource cycles, nutritional status, health and disease, and obesity. In both states, a small but identifiable portion of women reported food insecurity. Our data suggest a positive correlation with obesity and food insecurity in women, possibly as a result of monthly resource cycling. Diet quality was poor; was high in fats; and generally deteriorated over the resource cycle. Both food stamp users and non-users were overweight, with poor diet quality a likely contributor to overweight status. Research findings have been presented at many conferences, including the National Association of Welfare Research and Statistics, the National Council on Family Relations, Groves Conference on Marriage and Families, and the Federation of American Societies for Experimental Biology.

Impact: Implications for the women in our study, particularly as related to their long-term health status, include: (1) Besides the obvious disconnect between nutrition education and personal behavior, many of the women in these studies are approaching an age where early, multiple pregnancies, poor diet, or drug or alcohol abuse, will begin to take a toll on their bodies and their health, compromising their ability to achieve and maintain economic self-sufficiency for themselves and their families. (2) Nutrition-related chronic diseases, like type 2 diabetes mellitus, coronary heart disease, and hypertension disproportionately affect low income women; obesity is often a co-morbid condition. (3) The women's lack of health care coverage (i.e., their loss of Medicaid coverage as they exited welfare programs) will surely loom large as their health history, poor nutrition, lack of available nutrition education, and other environmental stressors, such as recent economic downturns, conspire to undermine their long-term physical well being and ability to support their families in a secure financial manner.

Sources of Funding: State, Hatch, Multi-State

GOAL 4

LSU AgCenter Goal 4 is to achieve greater harmony between agriculture and the environment. The integrity of Louisiana's diverse ecosystem must be ensured by developing, transferring, and promoting the adoption of sustainable agriculture, forestry, and related resource conservation policies, programs, technologies, and practices.

Research Reports

LAES scientists teamed with LCES specialists, and continued to develop and extend information on best management practices to address environmental concerns associated with agriculture. BMP manuals have been developed for most of the major commodities grown in Louisiana, and the research data related to BMP development is being utilized in the LCES "Master Farmer" initiative. Conservation tillage research for cotton and rice continued with benefits surfacing in the form of reduced production inputs and improvement of environmental quality.

A recently completed three year study examined the use of poultry litter as a source of nutrients for cotton production and the effects of such use on water quality. In addition, poultry litter was studied as a soil amendment in forestry production and water quality in that ecosystem. These studies revealed that poultry litter can increase vegetative understory in forests and provide increased food for wildlife and reduced soil erosion. In the cotton system, poultry litter was demonstrated to be a source of nutrients for crop production and capable of improving soil chemistry and organic matter. However, the highest levels of poultry litter did result in nitrate levels in ground water that exceeded the maximum contaminant level goals. These findings warrant further study but in general, it appears that use of poultry litter in agricultural and forestry ecosystem may improve soil fertility, reduce production costs, and be a method of disposal of organic waste.

The processing wastes from catfish and crawfish processing plants present disposal problems for the state. Adding value to crawfish shell waste and catfish viscera, as well as maximizing the use of undersized crawfish and catfish frame, would minimize pollution, offset costs in disposal of processing by-products or waste, and maximize processors' profits. Focus-group interviews and conjoint analyses with consumers indicated that crawfish sausage, crawfish nugget/patty/popper products and catfish based products were acceptable and would likely be purchased. Also, some of the by-products were found to contain health promoting fatty acids.

Extension Reports

Significant accomplishments include:

- Over 750 natural resource professionals, loggers, and landowners in Louisiana, Mississippi, and Arkansas estimated the personal value of education programs in forest management, growth, and yield modeling, and forest management for wetlands and water quality at approximately \$1,875,000.
- Prescribed burn management training for over 2,000 sugarcane growers and employees resulted in significantly fewer complaints, over 100 in 1999-2000 to 20 in 2000-2001, and improved air quality for citizens.
- Over 2000 attendees in landowner workshops over the state learned an array of management and conservation techniques to help them make critical management decisions.
- The Master Farmer Program, a multi-agency effort spearheaded by Extension to help agricultural producers voluntarily address environmental concerns and regulations in production agriculture, as well as enhance agricultural production and farm management/marketing skills for continued viability of Louisiana agriculture, developed curricula for implementing the environmental stewardship phase of the program.
- Nine best management practices (BMP) publications have been published and are being used in education programs on water resources management, including water quality.
- The Master Tree Farmer 2001 Program reached 205 people via nine regional broadcast facilities. Participants indicated they would save \$1 million in management cost and earn \$2 million in additional income as a result of the program.
- Approximately 4,000 pesticide applicators were certified and/or recertified in pesticide applicator training sessions.
- Poultry producers are improving their waste management and dead bird disposal practices and increasing awareness of EPA regulations, TMDLs, and poultry BMPs.
- A total of 1,135 landowners and natural resource professionals from across the south participated in 24 wildlife management programs. At a self-reported estimated average value of \$1,500 per participant, the total value of the wildlife management program for the year was \$1,702,500.

- Water quality education programs for youth reached 4,000 4-H members with information on the basics of water chemistry, and 4,100 youth on environmental aspects of water.
- Irrigation education programs have reached farmers in many parishes giving them a better understanding of the amount of water available from existing systems and how to best utilize the water resulting in increased crop yields and more efficient irrigation.

Total extension expenditure on Goal 4 programs was \$2,943,395. Of this amount, total multi-state expenditure is estimated at \$826,761 and multi-function expenditure at \$1,511,365.

Total extension FTEs on Goal 4 programs were 36.73 and 1,177,972 educational contacts were made.

**GOAL 4
EXTENSION SUMMARIES**

Federal Goal 4

AIR QUALITY

Key Theme: Air Quality

Program Description

The ability of growers to burn sugarcane is a significant economic factor for the state's sugarcane industry. The industry has been proactive in its efforts to improve air quality by developing the Certified Prescribed Burn Manager Program, which is administered by the Louisiana Department of Agriculture and Forestry (LDAF). The LDAF, the American Sugar Cane League (ASCL), and the LSU AgCenter developed a training curriculum titled, "Louisiana Smoke Management Guidelines for Sugarcane Harvesting". Although the training was voluntary, 1,382 sugarcane growers and their employees attended the sessions, which were held at various locations in the sugarcane-growing region during the summer of 2000, with a makeup session in August of 2001. Further, the LSU AgCenter provided followup educational fact sheets on the prescribed burn program to its extension agents for distribution to the general public. Extension agents were given additional training at the summer Extension/Research Training Meeting on the importance of the prescribed burn program. Extension programs reiterating the lessons learned in the training were also conducted at all sugarcane field days conducted during the summer of 2001. In addition, the ASCL provided additional literature used by its growers to better inform the public of the need to burn responsibly. The LSU AgCenter, in cooperation with the USDA's Agricultural Research Service, has also taken a proactive attitude toward eliminating the need for or minimizing the effect of cane burning by initiating research on viable, economically feasible alternatives to agricultural burning to include developing value added products from the cane crop's residue resulting from green cane harvesting. Even though not specifically related to air quality, an effective trash management program that uses the residue over the winter and spring to reduce runoff could also have a positive impact on water quality. Further, demonstrating the potential benefits of effectively managing the residue on the crop and the environment may result in a higher percentage of the crop being harvested green by cane combine. Other research initiatives have shown that the residue left on the field following green cane harvesting may help suppress weeds. Other research has tested biological agents that could be used to speed up decomposition of the residue further reducing the need to burn. However, research thus far has also shown a significant loss of sugarcane yield in the subsequent stubble (ratoon) crop, especially following cold, wet winters if the residue is allowed to remain on the soil surface. Besides the LDAF, ASCL and the LSU AgCenter, other collaborators included the Florida Sugar Cane League, the USDA Forest Service and the National Weather Service.

Program Impact

Although 1,382 sugarcane farmers and their employees attended the Certified Prescribed Burn Manager Program training sessions in 2000 and 2001, over 2,000 persons, which included many of these same growers and employees attended the sugarcane field days in which additional training on smoke management was given. It appears the program worked exceptionally well because there were significantly fewer complaints received by the LDAF and ASCL during the 2000-2001 harvest than in previous years. From a total of over 100 complaints filed during the 1999-2000 harvest there were fewer than 20 complaints with a letter to the growers cited for improper activities with regards to their burning practices. As a result of this program the Louisiana sugarcane industry has received excellent feedback from the communities on their attempt to improve air quality for all its citizens.

Source of Funds

Smith-Lever 3 b, c (federal funds)

Scope of Impact

State only

Multi-function: It is estimated that 2.5 FTEs was allocated to Air Quality work. Of this, 15% is attributable to research-extension integrated activities. Multi-function work accounts for \$30,005 (2.5 FTEs x \$80,136 per FTE x .15).

Federal Goal 4

CONTINUING EDUCATION IN NATURAL RESOURCES PROGRAM

Key Theme: Forest Resource Management

Program Description

The Continuing Education in Natural Resources Program was established as a result of stakeholder input. Stakeholders, mainly natural resource professionals, desired continuing education workshops in such diverse areas as forest management, growth and yield modeling, managing forests for water quality, and wetlands forest management. Experts from Louisiana and around the South participate in the production and execution of these workshops.

Program Impact

In FY 2001 over 750 natural resource professionals, loggers, and landowners from Louisiana, Mississippi, Arkansas, and Texas participated in these workshops. Participants evaluated the workshops as having a personal value of approximately \$2,500 per workshop per person. Therefore, the total value of the program in FY 2001 was approximately \$1,875,000.

Source of Funds

RREA funds (Renewable Resources Extension Act)

Scope of Impact

The impact is both multi-state and multi-function. Materials and methods developed for these diverse, multi-function workshops are generated from research and extension materials from around the South. Speakers from around the southern United States are recruited to participate in the workshops. Approximately 1.8 FTEs were spent on the program.

Multi-state: This is entirely a multi-state activity. The dollar equivalent attributable to this work is \$144,245 (1.8 FTEs x \$80,136 per FTE x 1.0)

Multi-function: This is entirely a multi-function activity. The dollar equivalent attributable to this work is \$144,245 (1.8 FTEs x \$80,136 per FTE x 1.0).

Federal Goal 4

FORMOSAN SUBTERRANEAN TERMITE

Key Theme: Integrated Pest Management

Program Description

The Formosan subterranean termite is still a serious problem. A meeting was held with property owners where they could provide input. All property owners were contacted. Frequent contact was also maintained with pest management professionals (PMPs). A meeting was held with property owners. Each property was inspected. Treatments were maintained. Meetings were held with PMPs. Continuous contact is maintained with PMPs. ARS and the New Orleans Mosquito and Termite Control Board are helping in the program. PMPs continue treatments of properties.

Program Impact

Ninety-nine percent of the properties are treated in the treatment area. Treatments out of the treatment area have increased to 40 percent. Property owners are adopting the technology. The numbers of termites are being reduced. This will save money. There will be less repairs and less insecticide used.

Source of Funds

Federal funds

Scope of Impact

Multi-state: Collaboration with professionals from Texas, Hawaii, Florida, and Mississippi. Information from the National Technical Committee meeting was used to develop 20 % of the program. The dollar equivalent of multi-state work is \$56,095 (3.5 FTEs x \$80,136 per FTE x .20)

Multi-function: Multi-function efforts (integrated extension-research) are estimated at 20% of the number of FTEs. The dollar equivalent of multi-function work is \$56,095 (3.5 FTEs x \$80,136 per FTE x .20).

Federal Goal 4

4-H NATURAL RESOURCES YOUTH EFFORTS

Key Theme: Natural Resources Management

Program Description

Each year at the 4H summer camp youth attend workshops where they learn the economic and environmental value of natural resources in Louisiana.

Program Impact

In FY 2001, over 3,000 youth attended the natural resource workshops and learned about the trees that grow in Louisiana, their value to the state's economy and environment, their uses, and where they are grown.

Source of Funds

Smith-Lever 3b, c

Scope of Impact

This is a state-wide program, with a multi-state or multi-function involvement. Approximately 1.2 FTEs were used in this effort valued at \$96,163.

Multi-state: 65% of total FTEs are attributable to multi-state work. This is equivalent to \$62,506.

Multi-function: 65% of total FTEs are attributable to multi-function work. This is equivalent to \$62,506.

Federal Goal 4

LANDOWNER ASSOCIATION MEETINGS AND WORKSHOPS

Key Theme: Natural Resources Management

Program Description

Area forestry agents have established and helped foster private forest landowner associations throughout the state. Meetings and workshops are held on a regular basis to enhance landowner

knowledge of new management technologies, environmental regulations and enhancements, and leadership development skills.

Program Impact

In FY 2001, over 23 landowner workshops were held throughout the state, involving area and county agents from Louisiana. Over 2,000 people attended these meetings in FY 2001 and learned a vast and diverse array of management and conservation techniques that will help them make critical management decisions.

Source of Funds

Smith-Lever 3b,c

Scope of Impact

This is a local, not a multi-state, effort.

Federal Goal 4

MASTER FARMER PROGRAM

Key Theme: Natural Resources Management

Program Description

In Louisiana we are blessed with beautiful and abundant waters to enjoy fishing, swimming, hunting, boating or just relaxing on the shore of a lake, river or bayou. Much of the water entering Louisiana water bodies comes from rainfall runoff. As this runoff travels across the soil surface, it carries with it soil particles, organic matter and nutrients, such as nitrogen and phosphorus. Activities on agricultural lands contribute to some amount of these materials entering streams, lakes, and estuaries. The solutions to controlling runoff will require the joint efforts of agricultural producers, landowners, government, private citizens, and private organizations working together.

Hypoxia in the Gulf of Mexico off the Louisiana coast and recent Total Maximum Daily Loads (TMDLs)/National Pollution Discharge Elimination System (NPDES) regulatory proposals targeting agriculture (both plant and animal production) and forestry have clearly created a great need for enhanced LSU AgCenter initiatives focusing on (1) defining the effects of agriculture and forestry production practices on environmental quality, (2) identifying the technology needed to reduce adverse impacts associated with these activities, and (3) development and implementation of extension programs that will lead to voluntary adoption of Best Management Practices (BMPs) and result in measurable improvements in environmental quality.

Research and education programs on environmental issues, agricultural production, and farm management/marketing have always been an important part of the LSU AgCenter's mission. Consequently, the LSU AgCenter has taken the lead in developing the Master Farmer Program in an effort to help agricultural producers address environmental stewardship through voluntary, effective, and economically achievable BMPs. The Master Farmer Program is being implemented through a multi-agency/organization partnership with the Louisiana Farm Bureau Federation (LFBF), the Natural Resources Conservation Service (NRCS), the Louisiana Department of Environmental Quality (LDEQ), the Louisiana Department of Natural Resources (LDNR), USDA – Agricultural Research Service (ARS) and the Louisiana Department of Agriculture and Forestry (LDAF).

Best Management Practices (BMPs)

BMPs are practices used by agricultural producers to reduce the generation and delivery of agricultural related pollutants into the air or waters of the state. Agricultural BMPs focus on four main areas: nutrient management, pesticide management, soil and water management, and general farm BMPs. Each BMP is a culmination of years of research and demonstrations

conducted by agricultural research scientists, soil engineers, and agricultural producers. BMPs and accompanying standards and specifications are published in the NRCS's Field Office Technical Guide which is routinely updated and expanded.

In an effort to develop and implement voluntary BMPs in Louisiana, the LSU AgCenter has conducted commodity- specific BMP reviews over the past 6-8 years. These reviews were conducted through committees made up of research and extension scientists, representatives from partnering agencies, and producers. Reviews have been completed and BMP publications have been developed for the following crops: rice, sugarcane, cotton, corn, soybeans, and sweet potatoes. Animal commodities that have completed BMP reviews and have BMP publications developed include: poultry, dairy, and swine. Additionally, beef cattle and aquaculture BMP publications will be completed by the summer of 2002.

Master Farmer Program

Public concern over the effects of agriculture and forestry production practices on environmental quality has grown in recent years. Louisiana has over 340 stream segments on the 303(d) list as being impaired (not meeting established standards for oxygen, fecal material and metals). These environmental concerns, along with the need for agricultural producers in Louisiana to be more proficient in production and farm management/marketing to remain economically viable, has led to a multi-agency effort to develop the Master Farmer Program. The Master Farmer Program is an effort to demonstrate that agricultural producers can and will voluntarily reduce the impact that agricultural production has on Louisiana's environment.

The Master Farmer Program has three components: Environmental Stewardship, Agricultural Production, and Farm Management/Marketing. Due to the increased pressure for regulatory control of production agriculture, the initial focus of the program is the Environmental Stewardship component. The Environmental Stewardship component will have three Phases. Phase I will focus on environmental issues specific to production agriculture and commodity specific BMPs and their implementation. Phase II of the Environmental Stewardship component will include in-the-field viewing of implemented BMPs on "Model Farms". Farmers will be able to see farms that document BMP effectiveness in reducing agriculture's contribution to water quality impairments. Phase III will involve the development and implementation of farm-specific, comprehensive conservation plans by the Master Farmer participants. This will include the selection and voluntary implementation of recommended farm-specific BMPs on the whole farm operation.

In addition, the Master Farmer Program will offer agricultural producers educational programs on production and farm management/marketing.

Program Impact

The Louisiana Master Farmer Program is a multi-agency effort targeted at helping agricultural producers voluntarily address the environmental concerns related to production agriculture, as well as enhancing their production and farm management/marketing skills that will be critical for the continued viability of Louisiana agriculture.

As TMDLs are being developed in Louisiana watersheds, Louisiana's agricultural producers will face the environmental challenge of compliance with mandatory reductions of nonpoint pollutants, such as nutrients, pathogens (fecal coliform), organic material/dissolved oxygen, sediment, and metals. Voluntary implementation of incentive-based, economically achievable and effective BMPs, through the Master Farmer Program.

Source of Funds

Section 319 grant from the Louisiana Department of Environmental Quality
Grant from the Louisiana Department of Natural Resources, Coastal Management Division.

Scope of Impact

Multi-state: Significant multi-state collaborative activities initiated in the Master Farmer Program include the Lower Mississippi Valley Initiative (LMVI) and the Delta Conservation Development Center (DCDC). The LMVI was developed to address agricultural profitability and environmental stewardship in the Lower Mississippi Valley region. The LMVI consists of a task force led by agricultural leaders from eight states in the lower Mississippi River Valley. These states are Louisiana, Mississippi, Arkansas, Tennessee, Missouri, Kentucky, Oklahoma and Texas. The primary goal of the LMVI is to develop a multi-state plan outlining the voluntary, incentive-based programs to ensure agricultural profitability and environmental stewardship.

The LMVI serves as a mechanism to address agricultural profitability and environmental stewardship. State agricultural leaders in the LMVI have held forums in the Lower Mississippi River Valley to work toward increasing support for agriculture and develop policy initiatives that assure profitability and enhance rural environmental sustainability.

The DCDC is a 300 acre site located in the Mississippi River Delta in Washington County, Mississippi. This site will be used to conduct research and demonstrations on Best Management Practices (BMPs) designed to reduce agriculture's contribution to water quality impairments in the delta area. It is representative of the Mississippi River Delta land found in all participating states. Since all of the partnering states share the same Mississippi River Delta, research data developed at the DCDC site will be relevant to all the states involved.

Once the site is developed, it will be used not only for research, but also to conduct field days and demonstrations. These field days will be used to promote adoption of BMPs by agricultural producers in the Mississippi River Delta. Work is continuing in developing the site.

It is estimated that 1.25 FTEs were allocated to these multi-state activities, valued at \$100,170 (1.25 FTEs x \$80,136 per FTE).

Multi-function: Integrated research-extension activities include the development and production of commodity-specific Best Management Practices (BMP) publications, a Master Farmer web site established by the LSU AgCenter, joint research-extension appointments, and the reorganization of the technical departments of the LSU AgCenter whereby extension specialists and research faculty are administratively integrated. It is estimated that a total of 7.25 FTEs of research and extension faculty time is expended in these collaborative activities, the dollar equivalent of which is \$580,986 (7.25 FTEs x \$80,136 per FTE).

Federal Goal 4

MASTER TREE FARMER 2001

Key Theme: Forest Resource Management

Program Description

In the southern United States, a vast amount of forestland acreage is owned by non-industrial private forest landowners. These landowners are currently only managing their forestlands at approximately 60% of their productive potential. Further, they are not managing to maximize environmental benefits. The Master Tree Farmer 2001 program was a regional program developed and implemented via satellite throughout the South. This seven-week program provided landowners with the basic knowledge necessary to assist them in making critical decisions regarding the productivity and environmental sustainability of their forestland.

Program Impact

In Louisiana, the program was broadcast at nine regional facilities throughout the state. It was attended by 205 people. Survey respondents indicated the program would save them approximately \$1.1 million dollars in management costs and would provide them approximately \$2.2 million dollars in additional income. Eighty-nine percent indicated they would implement environmental and production practices learned in the workshops.

Source of Funds

Smith-Lever 3b,c

Scope of Impact

The program was entirely regional in nature and totally multi-function. Approximately 2.1 FTEs were expended in Louisiana in this program in FY 2001.

Multi-state: The multi-state dollar value of the program is \$168,286 (2.1 FTEs x \$80,136 per FTE x 1.0).

Multi-function: The multi-function dollar value of the program is \$168,286 (2.1 FTEs x \$80,136 per FTE x 1.0)

Federal Goal 4

PESTICIDE APPLICATOR TRAINING

Key Theme: Pesticide Application

Program Description

Meetings, conferences and workshops were held throughout the state for both commercial and private pesticide applicators to enable them to be certified or to maintain their certification.

Program Impact

Approximately 4000 pesticide applicators participated in the training program and were certified and/or recertified.

Source of Funds

EPA Pass-Through

Scope of Impact

This program has been conducted since 1975 and serves all pesticide users in Louisiana. Fifty percent of the educational materials used in this program are in part or in full, from other states but were developed in previous years and are reprinted or revised as needed. It is estimated that 15 to 20% of ideas about how to conduct this program have come from attending various meetings on the regional or national level. Three multi-state meetings were conducted with Arkansas and Mississippi involving approximately 100 Louisiana residents. These three states are working together to develop an Ornamental and Turf Pest Control Study Guide.

Multi-state: Approximately 15% of 3.6 FTE was devoted to multi-state work, equivalent to \$43,273 (3.6 FTEs x \$80,136 per FTE x .15).

Federal Goal 4

POULTRY

Key Theme: Agricultural Waste Management

Program Description

In meetings with poultry shareholders, problems with broiler litter management, EPA regulations, and general management practices were identified. Also, various problems in the processing portion of the industry have been identified during meetings with complex managers. Relations with state regulatory agencies and integrators have been developed. Meetings with producers were conducted to familiarize producers with Poultry Best Management Practices (BMPs), Comprehensive Nutrient Management Plans, EPA proposed regulations and Total Maximum Daily Loads (TMDLs), and the Phosphorus Index. In addition, producer workshops were conducted to demonstrate the proper methods of soil and litter sampling, as well as proper

calibration of litter spreading equipment. The Louisiana Department of Environmental Quality, Natural Resources Conservation Service, Louisiana Department of Agriculture and Forestry, Louisiana Farm Bureau Federation, and the LSU AgCenter were involved as speakers and supporters of these producer meetings.

On-farm demonstrations of in-house broiler litter pasteurization have been initiated. Methods of pasteurizing broiler litter for reuse, within broiler houses, are being developed. ConAgra Poultry Company and the LSU AgCenter are involved in these demonstrations.

Program Impact

Producers are improving their waste management and dead bird disposal practices. Producers are improving their awareness of EPA regulations, TMDLs, and poultry BMPs. Producers are obtaining analyses of soil and litter samples in preparation for writing Comprehensive Nutrient Management Plans. The NRCS is receiving an increased number of inquiries for nutrient management plans by producers. Producers are improving overall management practices.

Source of Funds

Smith Lever 3b, c

Scope of Impact

Multi-state: Some of the ideas and material for these programs are the result of attendance at the International Poultry Scientific Forum and the International Poultry Exposition held in Atlanta, GA; the National Poultry Waste Management Symposium at Ocean City, MD; and the Annual Meeting of the Poultry Science Association at Indianapolis, IN. Forty percent of the poultry program is a result of these meetings and materials, the dollar equivalent of which is \$81,098 (2.93 FTEs x \$80,136 per FTE x .40)

Multi-function: Researchers and extension specialists collaborated on the development and training of agents and producers for a 100% multi-functional effort. The dollar equivalent of multi-function work is \$202,744 (2.53 FTEs x \$80,136 per FTE x 1.0)

Federal Goal 4

WASTE MANAGEMENT/COMPOSTING

Key Theme: Yard Waste/Composting

Program Description

The LSU AgCenter's W. A. Callegari Environmental Center conducted its 14th and 15th Compost Facility Operator Training Program.

The program included classroom as well as field training with window and aerated static pile composting systems.

The course is designed to train participants who manage and operate compost facilities.

Program Impact

As a result of the training sessions, 32 participants from nine states completed the four and one half day course on large-scale composting. This course should prepare participants for their state certification if required.

Source of Funds

Smith-Lever 3b,c

Scope of Impact

State only

Federal Goal 4

WILDLIFE MANAGEMENT

Key Theme: Wildlife Management

Program Description

The Wildlife Management Program is designed to assist landowners with techniques for the management of game and non-game wildlife resources on their lands in order that informed management decisions can be made regarding the economic potential of these resources. Nuisance wildlife and endangered species issues are also addressed as to their impact on the economic potential of land holdings. Stakeholder input into the program was determined by various advisory committee meetings and needs assessments. Problems that were identified through stakeholders include the management techniques for various game species, along with nuisance wildlife and endangered species issues. Major educational activities during the report period were intended to address these issues. Four workshops were conducted statewide to address problems with various vertebrate pests. Two wildlife food plot seminars were conducted. Eight seminars and workshops designed to address the implications for managing wildlife and timber resources on the same area were conducted.

Three endangered species workshops were conducted. Five nuisance wildlife seminars were conducted. Two field days were held to demonstrate wildlife management techniques on private lands. Evaluation forms and one-on-one contact with participants indicated that the programs provided needed information. Collaboration with the following agencies helped greatly in the success of the Wildlife Management Program by serving on advisory committees, speaking at seminars and field days, and providing literature to assist with educational activities: U.S. Fish and Wildlife Service, Louisiana Dept. of Wildlife and Fisheries, Louisiana Dept. of Agricultural and Forestry, Natural Resources Conservation Service, Ducks Unlimited, National Wild Turkey Federation, Louisiana Rice Growers Association, and the Louisiana Forestry Association.

Program Impact

End-of-program evaluations indicated that a majority of participants attending workshops, field days, and seminars received information that was worth several thousand dollars to their wildlife management operation. Most indicated that the information they received would cause them to change their management procedures in some way. A total of 1,135 landowners and natural resource professionals from across the south participated in the 24 wildlife management programs that were conducted during the report period. An average value of \$1,500 per workshop participant was given as the personal value of these workshops to the attendees. The total value of the Wildlife Management Program for the report period was \$1,702,500.

Source of Funds

All programs were conducted using federal funds with the exception of certain 4-H outdoor skills educational programs conducted under the umbrella of the 4-H Shooting Sports Program. Grant funds from the National Wild Turkey Federation were used to fund many educational programs in this area.

Scope of Impact

Multi-function: Materials and methods developed for the Wildlife Management Program involve resources from across the United States and are generated from research and extension materials. Approximately 1.9 FTEs were devoted to this program over the course of a year. The

programs incorporate the expertise of researchers and extension specialists from various states for a total multi-function effort of \$152,258 (1.9 FTEs x \$80,136 = \$152,258).

Federal Goal 4

WATER QUALITY

Key Theme: Water Quality

Program Description

Louisiana is a state blessed with abundant water resources, both ground and surface. Over the years both the quantity and quality of this resource has been taken for granted. However, in the last several years several events have occurred to cause public concern about protecting both the quantity and quality of Louisiana's waters. Several years of drought have reduced both ground and surface water supplies and made them more susceptible to pollution. The recent implementation of the Total Maximum Daily Load (TMDL) provisions of the Clean Water Act have made producers, operators, and the general public aware that many of the state's waters are not meeting the required standards for their designated uses. The publicity about the low oxygen zone (Hypoxia Zone) near the bottom in the shallow part of the Gulf of Mexico has brought awareness to the general public, farmers, and foresters that what is put into the local streams can affect waters far from the source of the pollution.

A multi-phase program has been developed to respond to the need to provide information on the impacts of man's activities on the quality of local and downstream surface and ground waters. Education efforts have included programs designed for youth, homeowners, farmers, foresters, livestock producers, teachers, and the general public. Delivery formats include individual and group meetings, education training sessions, 4-H Camps, homemaker meetings, producer meetings, local and state assemblies, State and regional fairs, Earth Day events, and print and broadcast media. Formats have included slide and video presentations, workshop sessions, hands on evaluations, and field demonstrations.

Program Impact

Youth- Camp sessions on water quality and hands on water monitoring education increased the knowledge and awareness of 3,959 4-Hers of the basics of water chemistry. Nine of the ten groups of campers conducted Water Awareness Fairs for the other campers. Over 4,100 youth participated in educational programs and field experiences in water quality protection and studied the role of wetlands in the water cycle and other environmental aspects of water. The continuing program to increase environmental education information available to teachers provided training and resource materials to an additional 54 teachers through Project Wet (Water Education for Teachers). Source water protection information for protecting drinking water supplies was provided to 65,000 rural water system subscribers. Water well testing program in Sabine Parish resulted in 86 families having their private wells tested. Water protection and conservation material were presented to 25,000 people at the Baton Rouge Earth Day Celebration.

Educational presentations on Best Management Practices (BMPs) were made to 1,046 producers resulting in adoption of water protection and conservation practices by 428 participants. Sprayer calibration on ground and aerial application equipment was conducted at 12 flyins and reduced impacts on streams from misapplication of pesticides. Nutrient management demonstrations including proper soil sampling techniques, understanding soil analysis results, manure application calculations, and spreader calibrations were conducted in 4 parishes with 85 poultry producers. A result demonstration on the impact of surface application of a wood ash/wood fiber mulch on reforestation areas in reducing soil erosion was conducted in the Calcasieu River Basin. Preliminary results are very positive.

Source of Funds

Funds were obtained from Smith-Lever, state sources, USDA-CREES 406 grant, and EPA Section 319 grants.

Scope of Impact

Multi-state: Multi state efforts are 60% of one FTE on a Regional 406 USDA-CREES grant and the USEPA Section 319 grant. These activities will be reported regionally through a Regional Web Page and through the EPA Region Six network. The dollar equivalent of multi-state work is \$48,082 (.6 FTE x \$80,136 per FTE).

Federal Goal 4

WATER RESOURCE DEVELOPMENT

Key Theme: Natural Resources Management

Program Description

The 2000 crop year was the third consecutive year of below-normal rainfall. Row crop farmers are trying to find sources of irrigation water and learn how to use it efficiently. The Water Resources Development program provides them with assistance in learning which soils can benefit from irrigation, which irrigation systems to consider, how to irrigate, and how to obtain water for irrigation.

County agents, farmers, consultants, agri-business and bankers in row-crop parishes have expressed their views through individual contacts, parish meetings, and communications with the LSU AgCenter administration that irrigation is necessary for sustainability. County agents in one extension district asked for irrigation presentations at their parish ag programs in the winter and for a half-day irrigation training program in the fall.

Problems identified through stakeholder input included availability of water of suitable quality; returns to investment in irrigation systems; applicability of available irrigation systems to specific farm operations; and timing of irrigation. County agents in most of the row-crop parishes in Northeast Louisiana and in one Southwest Louisiana rice parish have included drainage and irrigation on the agenda as part of their annual parish ag programs. Presentations include new technology as well as proven practices appropriate to the farmers, consultants, agents and agency staff in the audience and the crops, topography, soils, land tenure predominant in the parish. Types and costs of irrigation systems, expected returns from irrigation, maintenance and operational requirements, and applicability to various soil types were discussed. Availability and quality of ground and surface water has been a part of each discussion. Attendance at these parish programs varied from 50 to 125 people. A half-day irrigation engineering workshop was conducted at Delhi, Louisiana. Presentations were made by four extension and research irrigation engineers from Arkansas, Mississippi and Missouri. Arkansas is the fourth largest state in the United States in terms of irrigated acreage. All three states have conducted more research and have more experience in irrigating row crops than Louisiana. Arkansas and Missouri have developed and implemented irrigation scheduling programs critical to proper timing of irrigation. Arkansas and Mississippi have developed border irrigation for soybeans which is more efficient for drilled beans. In addition, Arkansas has developed more efficient rice irrigation technologies that some Louisiana growers are beginning to adopt. Attendance at this workshop included 150 people and exhibits were provided by a dozen agri-businesses.

Three parish irrigation workshops were conducted by LSU AgCenter extension and research faculty for farm consultants and their staff. Attendance ranged from four farmers and consultants to 25 farmers and consultants. The Concordia Parish county agent hosted a tour of three progressive rice growers for county agents and rice farmers from Southwest Louisiana. Many farm visits to help growers with irrigation decisions have been conducted. County agents have

conducted irrigation scheduling programs for their growers. Numerous meetings have been held with farmers, USDA NRCS, the Caddo Soil and Water Conservation District, the Soil and Water Conservation Commission, the Red River Waterway Commission and the Red River Valley Association to pursue a demonstration project designed to introduce Red River water into Red Bayou so that farmers could use it to irrigate about 14,000 acres. One two-day tour was organized with the Corps of Engineers to study irrigation water resource development projects in Southeast Arkansas. Participants included farmers, consultants, levee board representatives, Corps of Engineers, and USDA NRCS staff. Three meetings have been conducted with rice farmers, and Corps of Engineers and Department of Natural Resources staff concerning movement of water from the Red and Sabine Rivers into Southwest Louisiana. A water resource development presentation has been developed and used in numerous presentations.

The Irrigation Association has made training and publications available for use in Louisiana. The extension engineers from Arkansas, Mississippi and Missouri, with additional assistance from Alabama, Arizona, California, Georgia, Tennessee and Texas irrigation engineers have provided practical and useful information and assistance with training. LSU AgCenter research and extension faculty have participated in irrigation education programs and reported on their research and experience in irrigation. USDA NRCS engineers, soil scientists, resource and district conservationists and administrators have provided expertise and support. The US Geological Survey has provided data on ground and surface water quality and availability, and worked with county agents and farmers to conduct ground water level and salinity research in Northwest and Southwest Louisiana. The US Army Corps of Engineers, Vicksburg District and New Orleans District, have provided data and advice. The Louisiana Departments of Agriculture and Forestry, Environmental Quality, and Transportation and Development have provided data, help in understanding the rules and regulations, and assistance in developing water management districts. Crop consultants, irrigation equipment suppliers, and farmers have helped with adoption of new technologies.

Program Impact

Farmers in many parishes have a better understanding of the amount of water available from existing systems and how to best utilize the water resulting in increased crop yields and more efficient irrigation. A dozen soybean farmers have adopted border irrigation for drilled fields and a dozen rice farmers have adopted side-inlet irrigation. A few rice farmers have adopted zero-grade and are learning how to use it. County agents have provided irrigation scheduling for two dozen farmers resulting in yield increases, but none has adopted the technique for personal use. The number of irrigation water sample analyses conducted by the LSU AgCenter lab has increased from less than 100 per year to over 400 this year. Growers are learning how important it is to determine salt content of the ground water before using it on a crop. The Caddo Soil and Water Conservation District has formed an irrigation district, and a proposal for funds to support a surface water irrigation demonstration project has been requested by a Member of Congress. Another Member of Congress has provided funds for the Corps of Engineers to begin a scoping study for a larger surface water supply project in Northeast Louisiana. The results of these programs include: enhancement of crop yields; insurance against crop losses due to drought; decreased dependence on ground water; increased surface water availability for recreation, public water supply, business and industry; improved surface water quality and habitat during summer months; and nourishment of marsh in coastal parishes.

Source of Funds

Smith Lever, 3 b, c

Scope of Impact

The program's impact is currently in Louisiana. The irrigation and drainage education programs were dependent on assistance from other states, especially Arkansas, Mississippi, and Missouri. Research and extension faculty collaborated on development and implementation of the irrigation and drainage program.

Multi-state: The surface water development education program may have some impact on similar programs in other states in future years. Half of Louisiana's program is based on experience in Arkansas. Of the 2.07 FTEs expended on this program, 50% can be attributed to multi-state efforts. The dollar equivalent of multi-state work is \$82,940 (2.07 FTEs x \$80,136 per FTE x .50). In addition, .5 FTE of specialist time is devoted to multi-state activities, which is equivalent to \$40,068 (.5 FTE x \$80,136 per FTE). Total multi-state = \$123,006.

Multi-function: At least 50% of the information used in these programs has come to us from extension and research faculty in other states and from federal and state agency staff. The dollar equivalent of multi-function work is \$144,245 (1.8 FTEs x \$80,136 per FTE x 1.0).

GOAL 5

LSU AgCenter Goal 5 is to enhance economic opportunities and quality of life for families and communities.

Research Reports

Off-flavor in pond cultured catfish is one of the most severe problems facing the aquaculture industry. LAES researchers have examined sugarcane bagasse and pecan shell-based granular activated carbons (GAC's) to remove the metabolites of algae that are responsible for the off-flavor. If proven successful, the use of these agricultural by-products, besides solving environmental problems, would evolve into value-added commodities. Preliminary data indicate these by-products are as effective as coal-based GAC's and in some instances, even better.

A research initiative to determine the market opportunities and develop promotional strategies for Louisiana alligator leather products has found that alligator leather is appropriate for use in apparel, home furnishings, jewelry, and other items, in addition to traditional items such as belts, boots, and wallets. Other research findings revealed that most skin produced in the U.S. are sold to manufacturers in Asia and Europe and Louisiana is failing to reap the benefits of value-added products. Surveys of consumers indicated wearing of exotic leather was socially acceptable and most respondents were unaware that the American alligator is no longer considered an endangered species.

LAES scientists developed a method using ultra-small particles of precious metals, metal alloys, and microaggregates of metal complexes to dye fabrics. Because the colors are not derived from usual organic dyes, the colors are more resistant to the photobleaching and chemical bleaching. The method also has environmental benefits because the waste products are water, not unused dyes.

Extension Reports

Significant accomplishments include:

- A total of 184,666 students were reached in the character education program which was taught by over 7,500 adult and youth instructors in the school year 2000-2001. Over 75% of teachers and principals participating in the evaluation surveys reported improvement in the behavior of students in school.
- The Character Critters Program, piloted in 2000 and now with statewide and national coverage, distributed over 5,000 resource kits. Nearly 4,000 trained volunteers have reached 52,000 children and their parents, and 85,000 storybooks have been distributed for parents to read to their children.

- In the year-long Louisiana Child Care Provider Training Program, 471 training sessions were conducted in 46 parishes for 6,872 child care providers. Sample surveys of participants revealed that over 80% of them learned the various child care practices taught, and over 70% intended to use the practices they learned. Twenty percent of the participants already knew the practices taught or were using them.
- Approximately 2,800 parents, grandparents, and teen parents gained knowledge and skills in parenting education programs. Sample surveys of program participants showed that more than 70% of parents attending education programs learned 15 different parenting practices taught.
- Economic development initiatives led to 300 community and agricultural leaders gaining experience in analyzing and using economic development data, 450 producers learning and using alternative marketing strategies, and 3,000 residents learning about natural resource and heritage-based economic development.
- Nearly 7,000 individuals and families learned financial management and budgeting skills through workshops, classes, and individual counseling. Sample surveys of participants in these revealed:
 - All participants planned to change their lifestyle to cut expenses
 - Eligible participants planned to take advantage of the Federal Earned Income Tax Credit;
 - 75% planned to set financial goals and priorities, and make and use a spending plan;
 - 62% intended to reduce debts, comparison shop, and keep track of monthly expenses.
 -
- A total of 7,850 adult volunteers in the 4-H Youth Development program received training and support. A total of 13,188 youth enrolled in the 4-H leadership project; 5,183 youth assumed club leadership; 6,527 youth demonstrated new leader skills; 5,333 youth assumed volunteer leader roles in their parishes.

Total extension expenditure on Goal 5 programs is \$11,923,435. Of this amount, \$4,756,077 is attributed to multi-state work, and \$661,108 to multi-function work.

Total Extension FTEs on Goal 5 programs were 148.79 and 1,686,888 educational contacts were made.

**GOAL 5
EXTENSION SUMMARIES**

Federal Goal 5

CHARACTER EDUCATION

Key Theme: Character/Ethics Education

Program Description

In the summer and fall of 1999, over 2,500 citizens from all 64 parishes across Louisiana participated in Louisiana Community Futures Forums to identify concerns and express their desires for their communities in the future relevant to the quality of life. Local issues were identified in seven broad areas. One of those areas was Families and Youth. Examples of family and youth problems identified were eroding family values and morals, juvenile crime, teen pregnancy, and unstable families. Louisiana citizens suggested program solutions to address these problems thus improving the quality of life for families and youth. Solutions included character education for all family members, parenting education and life skills training for youth.

Children need character education at a young age to develop into responsible, productive citizens. The best window of opportunity for young children to develop a strong foundation of positive character is in the very early years. In Louisiana, there is a need (a) to increase young children's understanding of character concepts, and (b) to increase parental involvement in developing their children's character.

The character education program was initiated as a pilot in selected parishes of the state over three years ago. The program now covers all 64 parishes with an extension staff serving as program coordinator. Most parishes also have a coordinator representing the school system. Input is solicited from these coordinators in designing the statewide program and education curricula.

During the report year, two character education sets entitled "Exercising Character in School", and "Exercising Character in the Community" were developed. Each set includes seven lessons for each of five different age groups (4-6, 6-9, 9-11, 11-13 and teen age). "Exercising Character in School" lessons were distributed during the year. A total of 8,500 "Exercising Character in the Community" lessons are being printed and will be distributed to schools in fall 2001.

During the school year 2000-2001, 3,869 adult instructors and 3,468 youth instructors were trained. A total of 184,666 students were reached under the program.

A significant initiative in the character education program has been the development of the Character Critters Program with a now nationwide impact. The extension agent in Vermilion Parish (county) who provided education programs for Vermilion Parish Head Start children and parents had been asked by local Head Start staff to consider including character education. In November 1999, various stakeholders were consulted for advice on the development of a pilot project. They included local Vermilion Parish Extension and Head Start staff; a Louisiana legislator with interest in character education who had grandchildren in preschool; other parish Extension Family and Consumer Sciences (FCS) agents, and state extension specialists in child development and parenting. The "Character Critters" Pilot Program which emerged as a result of this collaboration was intended for preschoolers, their parents, and teachers using volunteers in public and private preschool classrooms, Head Start classrooms, child care centers, libraries, churches and other sites with preschoolers. Volunteers would utilize LSU AgCenter education resources to teach six concepts of character (responsibility, trustworthiness, respect, caring, fairness, and citizenship) to children through the telling of appealing stories about animals. Each child would receive a storybook and six take-home parent-child character development activities to encourage parent involvement, and parents at Head Start Centers would learn how to instill character traits in young children.

The pilot was evaluated as successful in the spring of 2000 and plans were made to expand the program statewide. The program began to be implemented statewide in the fall of 2000. A total of 3,500 Character Critters resource kits developed are now being used across Louisiana and an additional 1,500 kits are being used in other states, U.S. territories, and other countries.

Institutions collaborating in the character education program include Louisiana Department of Corrections, Louisiana Department of Education, Louisiana Department of Health and Human Services, Louisiana Workforce Commission, School to Career, Safe and Drug Free Schools, Louisiana Network of Health and Safety Stakeholders, Louisiana School and Food Service Association, Louisiana Association for Public Community and Adult Education, Louisiana Community Policing Institute, Louisiana Association of Career and Technical Educators, LSU Athletic Department, and Louisiana Association of Business Educators. Representatives of these institutions have received training in and have agreed to support the six pillars of character.

In the "Character Critters" Program, Extension staff throughout the state are collaborating with leaders and teachers in Head Start programs, school districts, private schools, child care centers, libraries, parish health units, bookstores, and businesses and churches to implement the program for preschoolers and their parents. Extension staff are also recruiting and training volunteers and providing them with program materials to teach preschoolers.

Program Impact

Character Education Program: In the school year, 1998-1999, 75% of 735 teachers who were surveyed observed "some improvement" or "very much improvement" in classroom behavior after the "Exercising Character in School" lessons were taught. In the school year, 1999-2000, over 200 principals were surveyed and 75% of them observed "some improvement" or "very much improvement" in the behavior of students at their schools. Focus group interviews in three parishes indicated reduction in discipline problems and a generally positive impact on students. One respondent said "We definitely noticed a difference in the children who came from a school where CHARACTER COUNTS! was being implemented. We had less conflicts with that group of children. They were able to do peer mediation. Sometimes things didn't escalate because of what they had learned to do."

Character Critters Program: As of September 2001, the program is being implemented in all 64 Louisiana parishes. A total of 2,000 volunteer resource kits have been placed on loan with volunteers, 3,944 volunteers have been trained to tell children character stories, 52,077 children have been told stories, and 85,000 storybooks have been given to parents across Louisiana to read to their children at night to support what is being taught to them at school and child care centers. The Character Critters Program has become a truly multi-state program, its resources now being used in 42 states and the Virgin Islands. States with the strongest "Character Critters" program efforts include Arkansas, Illinois, Iowa, Mississippi, Oklahoma, Texas, and Virginia. The program has been used or will be used in three foreign countries, i.e., Honduras, Korea, and Ukraine.

Formal evaluation of the Character Critters Program was done through a survey of preschool teachers implementing the program and parents of preschoolers participating in the program. A total of 92 teachers and 228 parents responded to the surveys. The results were as follows:

- 100 % of teachers said the program helped them (1) learn activities that would help with their students' emotional and social development, (2) teach character to their students, and (3) practice good character themselves.
- 96.7 % of teachers indicated they would conduct character activities for their students that foster character
- 97.8 % of teachers reported they would personally act with character
- 98.2 % of parents said they learned (a) activities that would help with their child's development, and (b) how to teach character to their child, and that they would choose activities to help with their child's' development

- 99.1 % of parents said they would talk to and spend time with their child as a result of participating in the program
- 98.7 % of parents said they would use the take-home parent-child activity sheets and parenting for character suggestions
- 96.9 % of parents committed to acting with character
- 96.1 % of parents reported they would teach the six traits of character to their children.

Source of Funds

State

Scope of Impact

Other states using character education materials developed by Louisiana are Alabama, Arkansas, Colorado, Florida, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Mississippi, Missouri, Nebraska, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, and Wisconsin.

In FY 2001, 5 FTEs were spent on character education with Character Critters for preschoolers. Based on an FTE cost of \$80,136, the total cost of the program was \$400,680. It is estimated that 43% of this program's FTEs or \$172,292 is attributable to multi-state collaborative programming, information sharing and utilization in 43 states and the Virgin Islands. Of a total of 3,500 Character Critter resource kits, 2,000 kits are being used in Louisiana (57%) and 1,500 kits (43%) in 41 other states and the Virgin Islands. In particular, Louisiana Cooperative Extension Service and Oklahoma Cooperative Extension Service are sharing resources, training, and evaluation of the program.

Federal Goal 5

CHILD CARE

Key Theme: Child Care/Dependent Care

Program Description

Over 800,000 children in Louisiana are in need of quality child care. Developmental stages of children, children home alone, and child guidance are dominant issues identified by a statewide advisory committee and research counterparts. The Louisiana Child Care Provider Training Program has been developed by FCS specialists to train early childhood educators. Collaborative efforts in child care education were accomplished with personnel from Head Start, Office of Family Support, YWCA, Kiwanis Clubs, Prevent Child Abuse Louisiana, Family and Community Education Council, schools, family literacy programs, Housing Authority, Office of Community Service, Department of Corrections, a Native American Indian tribe, and staff from some of the cooperative groups who provided leadership for education.

Audiences were recruited through a variety of methods including newsletters, news articles, and television and radio spots. Personal contacts were also made as well as contacts through other agencies and organizations. Thirty-eight (38) professional extension faculty offered 146 training sessions in child care in 45 parishes.

Program Impact

The program was evaluated for educational impact on the extent to which program participants (child care providers) learned various child care practices taught at the training sessions. The information was gathered using end-of-session questionnaires on the items taught at the training sessions. Numbers of respondents to the questionnaire items, and percentages of them who reported they learned or had previous knowledge of the different practices are shown in the table below:

Practice taught in program	Number of respondents	% learned practice	% already knew
Activities that will help children's development	787	73	27
Expected age behaviors of children	854	72	28
Skills to nurture children	675	65	35
Positive communication skills	283	64	35
Importance of listening, giving feedback	148	77	3
Optimum caregiver traits	59	100	0
Reduce chances of children getting food-borne illnesses	106	78	20
Cause of food-borne illnesses	106	75	22
Practices affecting early brain development	59	100	0
Sources of information on children's development	109	57	43
Ways to teach six character traits to children	245	94	4

(Note: For practices where percentages do not add up to 100, the difference reflects percent of respondents who said they had not learned)

The program was also evaluated on the extent to which program participants (child care providers) said they would use the child care practices taught in the training sessions. Again, the information was gathered using end-of-session questionnaires on the items taught at the training sessions. Numbers of respondents to the questionnaire items, and percentages who reported they would use the practices taught or were already using those practices are shown in the table below:

Practice taught in program	Number of respondents	% who would use practice	% already using practice
Best age-related child guidance techniques	475	76	24
Choose activities to help children's development	1044	68	23
Communicate in a positive manner with others	307	47	49
Provide nurturing environment for children	709	63	36
Provide a safe and healthy home for children	385	49	50
Talk to and spend time with children	493	56	44
Conduct themselves appropriately in workplace	98	50	49
Use six character pillars to make work choices	61	87	13

(Note: For practices where percentages do not add up to 100, the difference reflects percent of respondents who said they would not use.)

Source of Funds

Smith-Lever, 3b, c. State contract: Child Care Assistance Program.

Scope of Impact

Multi-state: In FY 2001 14.5 FTEs were spent on the child care program for a total program cost of \$1,161,872. It is estimated that 20% of the FTEs expended on program is attributable to planning and implementation activities and to the acquisition and sharing of information on child

care with other states. The equivalent dollar value of 20% of program FTEs for multi-state work is \$232,384 (14.5 FTEs x \$80,136 per FTE x .20)

Multi-function: It is estimated that 20% of the program FTEs on the child care program is attributable to integrated research-extension or multi-function activities in which extension and research counterparts collaborated in curriculum development and acquisition of information. The dollar equivalent of 20% of program FTEs for multi-function work is \$232,384 (14.5 FTEs x \$80,136 per FTE x .20).

Federal Goal 5

DISASTER EDUCATION: FLOOD PROTECTION FOR EXISTING HOMES

Key Theme: Family Resource Management

Program Description

From 1997 through 2000, the LSU Ag Center, Extension (LCES) developed flood damage reduction material and conducted educational programs on flood protection for county agents, local floodplain administrators, and emergency managers and volunteers. It also developed a LouisianaFloods.org website, providing access to real-time weather and flood information and protection methods. Throughout this period, Louisiana was experiencing drought conditions.

LCES hosted a one-week training course, FPM 101, for the State Office of Floodplain Regulations, and delivered flood protection resource information to floodplain administrators at the annual meeting of the Louisiana Floodplain Management Association.

LCES provides leadership to the Flood-proofing Committee of the Association of State Floodplain Managers, which raises the level of awareness of flood damage reduction techniques among floodplain managers and provides input on national policy regarding protection of individual flood-prone structures.

Program Impact

In June 2001, Tropical Storm Allison provided an opportunity for utilization of information materials and for training, LCES coordinated mitigation efforts with the FEMA disaster mitigation team and supplied 50,000 copies of locally produced flood protection fact sheets for distribution through area Home Depots and FEMA disaster recovery centers (DRCs). The LCES flood-proofing video was shown in the DRCs. In addition, LCES was an additional point of referral for inquiries on flood protection methods and assistance programs. During the week of the event, the LouisianaFloods.org website had over 90,000 hits from 12,000 unique visitors with an average viewing time of eleven minutes.

Source of Funds

Maintenance of the LouisianaFloods.org website was supported in part through USDA Special Needs Funds. FEMA paid (during the next FY) to replenish materials that had been expended in the recovery effort.

Scope of Impact

Printed materials and videos were distributed solely in Louisiana following Tropical Storm Allison. It is not possible to know to what extent the hits on **LouisianaFloods.org** were from within the state. The event itself affected states from Texas to Pennsylvania, and a few direct inquiries from out-of-state were fielded. In general, the educational efforts have in-state impacts but are based on multi-state experiences.

Federal Goal 5

EXTENSION DISASTER EDUCATION NETWORK (EDEN)

Key Theme: Family Resource Management

Program Description

The Extension Disaster Education Network was formed originally as a North Central Region Committee to improve Extension's ability to respond to natural disasters relative to the experience of the 1993 Midwest floods. Under Louisiana leadership, from 1998-2000, the Committee grew to a national network of 34 states plus Puerto Rico and USDA-CSREES. Leadership for EDEN transferred to Missouri in October 2000. The website resides on an LSU Ag Center server and Louisiana continues to maintain the website and serve as registrar. A principal asset of the network is a web-based, searchable database of extension disaster education resources. EDEN's communications are served by a group e-mail system hosted by Michigan State University. Delegates from the member states meet once a year.

Principal collaborators: In Louisiana - Gene Baker, Assoc. Vice Chancellor for Information Technology and Pat Skinner, Extension Associate in Environmental Science. States represented on the Executive Committee: Missouri, Wisconsin, South Carolina, Oregon, Indiana, Michigan, and North Dakota.

Program Impact

Extension educators in the field have Internet access to disaster education materials developed by Extension in their states and in other states. Extension educators can obtain immediate help with disaster situations using the e-group. Extension is being recognized increasingly for its role in mitigating disasters, in raising the level of awareness within Extension Services of the role of Extension in disasters, and in helping members develop disaster education programs. EDEN has developed positive relationships with the Federal Emergency Management Agency, Department of Commerce/NOAA, the Natural Hazards Center (Boulder) and the Association of State Floodplain Managers.

Source of Funds

Maintenance of the EDEN website and production of an EDEN display was funded in part by USDA-CSREES Special Needs funds.

Scope of Impact

100% of this program can be attributed to a multi-state effort of 34 participating states.

Federal Goal 5

ECONOMIC DEVELOPMENT INITIATIVE

Key Theme: Community Development

Program Description

In 1998, LCES conducted a series of futures forums in each parish of the State. In these forums, Louisiana residents in 59 of the state's 64 parishes identified economic development as one of their most pressing issues.

Louisiana residents asked for assistance in the following areas:

- (a) business development, retention and expansion,
- (b) workforce development,
- (c) civic engagement and leadership development, and
- (d) natural resource and heritage based tourism development.

In response, LCES identified a new economic development initiative and reassigned eight (8) county and extension agents as multi-parish Community Economic Development (CED) agents to work with three (3) Community and Economic Development, and Family and Consumer Sciences specialists on a Community and Economic Development (CED) Team to provide economic development education, technical assistance, and facilitation services to the Louisiana public. Specialists increased their activity in economic development research projects. CED agents began graduate courses to specialize in community and economic development. The CED Team identified and developed (and/or adapted) and is delivering 12 new CED educational programs focusing on the above four areas of need. The CED Team is collaborating with numerous local (police juries, school boards, Chambers of Commerce, local governments, utilities), state (Louisiana Department of Culture and Recreation, Governor's Office of Rural Development, Red River Waterway Commission), regional (Southern and North Central Development Centers, other universities) and national organizations and agencies (US Department of Agriculture, US Department of Interior).

Program Impact

Clientele throughout the state are (a) gaining an increased understanding of economic development alternatives (i.e., moving beyond smokestacks), (b) increasing participation in community-initiated activities relating to economic development, (c) increasing their collaboration with organizations that assist in economic development, and (d) improving their access to economic opportunities throughout the state.

Source of Funds

Smith-Lever 3b,c; Grant from Red River Waterway Commission

Scope of Impact

Multi-state: A total of 1.9 FTEs was expended on the program, valued at \$152,659. It is estimated that approximately 75% of the ideas and teaching materials for these programs come from the Southern and North Central Rural Development Centers and other states. Therefore, the dollar equivalent of multi-state work is \$114,494 (1.9 FTEs x \$80,136 per FTE x .75).

Multi-function: It is estimated that 25% of the FTEs expended in this program is multi-function in terms of extension-research collaboration and derived from findings of CED research. Therefore, the dollar equivalent of multi-function work is \$38,064 (1.9 FTEs x \$80,136 per FTE x .25).

Federal Goal 5

ECONOMIC DEVELOPMENT - BUILDING LOCAL CAPACITY

Key Theme: Impact of Change on Rural Communities

Program Description

Specialists and CED agents conducted numerous sessions and assembled data for the public on impact of change on rural communities. Issues addressed included demographic, social and economic changes, and their impacts on rural Louisiana communities. Training focused on economic conditions in Louisiana as well as on the kinds and extent of data available and when to use different sources of data.

Program Impact

Clientele throughout the state are gaining an increased understanding of how to find, understand, and use data for economic development. Approximately 300 community and agricultural leaders participated in training sessions devoted to this topic. Participants learned how to find these data on the Internet, how to evaluate the data, and what types of conclusions to draw from these data.

Source of Funds

Smith-Lever 3b,c

Scope of Impact

Multi-state: This is a statewide program, none of which can be attributed to multi-state activity.

Multi-function: At least 60% of the material taught in the training sessions comes from research. A total of .25 FTE was expended on this program, with 60% of this being attributable to research-extension collaboration and research-based data. The dollar equivalent of multi-function work is \$12,020 (.25 FTE x \$80,136 per FTE x .60).

Federal Goal 5

ECONOMIC DEVELOPMENT - BUSINESS

Key Theme: Promoting Business Programs

Program Description

Business development, retention, and expansion is one of the four major focus areas for the LCES Community Economic Development Team. Louisiana residents identified these as areas of needed assistance during the 1998 Louisiana Futures Forums. Specialists and agents are working together to prepare and present educational materials on small business development. They are currently adapting educational materials from the University of Tennessee Agricultural Extension Service and the Southern Rural Development Center for use in Louisiana.

Program Impact

During the report year, 22 people participated in entrepreneurship training provided by the LCES, while another 15 individuals obtained employment as a direct result of LCES efforts. Almost 450 producers have learned and are involved in alternative market strategies, including cooperatives and farmers' markets, and/or have developed small business enterprises.

Source of Funds

Smith-Lever 3 b,c

Scope of Impact

Multi-state: A total of 1.9 FTEs was expended on the program, valued at \$152,659. It is estimated that approximately 75% of the ideas and teaching materials for these programs come from the Southern and North Central Rural Development Centers and other states. Therefore, the dollar equivalent of multi-state work is \$114,494 (1.9 FTEs x \$80,136 per FTE x .75).

Multi-function: It is estimated that 25% of the FTEs expended in this program is multi-function in terms of extension-research collaboration and use of findings of CED research. Therefore, the dollar equivalent of multi-function work is \$38,064 (1.9 FTEs x \$80,136 per FTE x .25).

Federal Goal 5

ECONOMIC DEVELOPMENT - TOURISM

Key Theme: Tourism

Program Description

Natural resource and heritage based tourism is one of four focus areas for the Community Economic Development Team, identified during the 1998 Community Futures Forums for needed assistance by Louisiana residents.

Specialists and agents are working to educate residents as to the economic development potential of tourism, particularly natural resource-based tourism as the abundance of wetlands, forests, marginal agricultural lands and wildlife in the state lends itself to ecotourism. A unique historical and cultural legacy also contributes to heritage-based tourism opportunities.

Specialists and agents are also providing technical assistance and meeting facilitation services for tourism-based economic development projects.

The CED Team is working with various organizations throughout the state and the southern states in developing ecotourism and heritage-based tourism opportunities. These organizations include the Department of Culture, Recreation and Tourism, the Nature Conservancy, local tourism commissions, and the Red River Waterway Commission.

Program Impact

Almost 3,000 Louisiana residents have participated in educational programs and activities related to natural resource and heritage-based economic development. They are learning how to balance economic development with minimal impact on the natural resources on which these programs depend. They are learning about the different opportunities for economic development associated with a natural resource and heritage base. Through our visitor infrastructure awareness program, they are learning about what their communities look like to outsiders. They are also learning about their natural resource and heritage base. Specialists and agents have participated in developing museums, hiking, birding, and equestrian trails, as well as natural resource, commodity, and heritage-based fairs and festivals.

Source of Funds

Smith-Lever 3b,c

Scope of Impact

Multi-state: A total of 1.9 FTEs was expended on the program, valued at \$152,659. It is estimated that approximately 75% of the ideas and teaching materials for these programs come from the Southern and North Central Rural Development Centers and other states. Therefore, the dollar equivalent of multi-state work is \$114,494 (1.9 FTEs x \$80,136 per FTE x .75).

Multi-function: It is estimated that 25% of the FTEs expended in this program is multi-function in terms of extension-research collaboration and use of findings of CED research. Therefore, the dollar equivalent of multi-function work is \$38,064 (1.9 FTEs x \$80,136 per FTE x .25).

Federal Goal 5

ECONOMIC DEVELOPMENT - WORKFORCE PREPARATION

Key Theme: Workforce Preparation - Youth and Adult

Program Description

Workforce development is one of the four focus areas for the Community Economic Development Team which were identified by Louisiana residents in futures forums conducted around the state in 1998.

During the report year, the CED Team and agents throughout the state concentrated on teaching clientele basic skills required to participate in the workforce, and workplace ethics.

Program Impact

More than 2,000 youth and young adults learned skills and behaviors necessary for participating in the workforce. A total of 17,000 Louisiana residents received literature on workforce

preparation. Seventy-four law enforcement officers, 39 community organizations, and 11 school systems received training and are using extension materials on ethics in the workplace.

Source of Funds

Smith Lever 3 b,c

Scope of Impact

This is a statewide program.

Federal Goal 5

PARENTING

Key Theme: Parenting

Program Description

Lack of parenting skills was identified as a concern by a statewide advisory committee. Education in parenting skills is also a requirement for teen mothers receiving welfare assistance. Developmental stages of children, children home alone, and child guidance are dominant issues.

Over 1,600 parents and grandparents attended a series of workshops to learn more about recommended parenting practices and skills to create a safe and nurturing environment for their children. Program audiences included incarcerated and early release parents, single parents, fathers, pregnant teens, shelter residents, Head Start families and the general public. Collaborative efforts in parenting education were accomplished with personnel from Head Start, parenting centers, Office of Family Support, YWCA, Kiwanis Clubs, Prevent Child Abuse Louisiana, Family and Community Education Council, schools, family literacy programs, Housing Authority, Office of Community Service, Department of Corrections, a Native American Indian tribe, and staff from some of the cooperative groups who provided leadership for parenting education.

Audiences were recruited through a variety of methods including personal, agency, and organizational contacts, newsletters, news articles, and television and radio spots. Extension agents from 31 parishes reported teaching or disseminating information in some manner on parenting through workshops, newsletters, exhibits, and radio and television broadcasts. Over 1,000 individual or personal visits, 3,400 pieces of print media, and 154 workshops or training sessions were conducted.

According to self-reports and evaluations by extension home economists, approximately 2,800 parents, grandparents, and teen parents gained knowledge and skills in parenting education through attendance in Every Touch Counts, Bringing Up Children, or other classes taught in the parishes. Over 350 parents reported changing their discipline or guidance techniques with their children as a result of parenting classes. The number of families completing parenting classes of Every Touch Counts, Bringing Up Children, or other classes totaled over 2,800 in 34 parishes. The "Security Blanket" newsletter was distributed to more than 500 parents with newborns. Over 4,600 youth gained skills necessary for their safety when home alone through participation in the "Alone and OK" program. Life skills learned by participating in "home alone programs" include self-sufficiency and emergency skills while home alone. Approximately 3,000 persons participated in workshops on the development of positive interpersonal relationships. Research indicates that communication is a skill which can prevent divorce, discipline problems in youth, and conflict. Audience participants included parents, teens, senior citizens, and family members.

Program Impact

The program was evaluated for educational impact on the extent to which program participants learned parenting practices taught in training sessions around the state. The number of respondents and percentages of respondents indicating they learned practices taught are shown below:

Parenting practice	Number of respondents	% learning practice	% who already knew practice
Activities to help children's development	1,354	73	26
Age-expected child behaviors	1,505	68	32
Interpersonal communication skills	105	73	23
Children nurturing skills	1,354	66	34
Choose activities to help children's development	1,391	70	30
Positive communication with others	680	56	44
Provide nurturing environment for children	1,379	64	35
Plan to provide safe and healthy home	773	60	39
Plan to talk and spend more time with children	1,023	62	37
Use recommended child guidance techniques	892	76	24
Incorporate six pillars of character in choices	137	87	13
Work through ethical dilemmas	89	92	8
Proper nutrition for health and development	168	71	29
Where to seek further information	516	68	29
Follow guidelines in making ethical decisions	67	97	3
Know six basic pillar of character	160	83	14
Ethical decisions affect family and community	57	91	8

(Note: Where total percentage does not add up to 100, the difference reflects the percentage of respondents who did not learn the practice)

Source of Funds

Smith-Lever 3 b,c; State contract (Children's Trust Fund)

Scope of Impact

Multi-state: In FY 2001, 5.5 FTEs were spent on parenting education resulting in over 20,000 contacts. Based on an FTE cost of \$80,136 the total cost of the program was \$440,748. It is estimated that 30% of the program effort is attributable to multi-state work, i.e., joint planning and implementation, and acquisition and sharing of information. The dollar equivalent of multi-state work is \$132,224 (5.5 FTEs x \$80,136 per FTE x .30)

Multi-function: Contributions from research counterparts included assistance in curriculum development, agent training and presentations to clientele is estimated at 20% of the program FTEs. The dollar equivalent of multi-function work is \$88,149 (5.5 FTEs x \$80,136 x .20)

Federal Goal 5

4-H YOUTH DEVELOPMENT

Key Theme: 4-H Youth Development

Program Description

Concern with positive youth development was a major issue of two thirds of the 64 Louisiana parishes participating in local forums. Additional emphasis is being given to the recruitment of volunteer project leaders and more in-depth project learning for 4-H members.

Program Impact

In the past years 65,000 youth were involved in project work. The curriculum was developed on a multi-state basis.

Source of Funds

Smith-Lever 3 b, c

Scope of Impact

At least 40% of all 4-H agent time is devoted to project work and 60% of the project work relates to the project manuals. \$361,332 was spent purchasing project manuals from 4-H CCS and state generated project books. The total multi-state effort is valued at \$1,976,873 (84 FTEs x \$80,136 per FTE x .40 x .60) plus (\$361,332-project manuals cost)

Federal Goal 5

FAMILY ECONOMICS

Key Theme: Family Resource Management

Program Description

Research indicates that almost one-fifth of all Louisiana families and one-third of all children live in poverty. The median income for families is 76% of the national average and many families are transitioning from public assistance. Money & You, a nine-unit multi-state educational program of the Arkansas, Louisiana and Mississippi Cooperative Extension Services has been finalized and agents have been trained in collaboration and delivery of this and other educational programs to assist limited resource audiences in managing their resources to improve their quality of life.

Increasing the home ownership rate is a national goal. There is a critical need for home buyer education since Louisiana has a low rate of home ownership and many lending programs require it (or want to), but there is inadequate quality and availability. Consumers face a complex,

intimidating, expensive process; mistakes are costly. The Extension Your Path to Home Ownership program involves teams of Extension agents and local partners in teaching a 12-hour series of classes targeting low- and moderate-income households.

Program Impact

As a result of this program effort 6,838 individuals and families were assisted with financial management and budgeting skills. Surveys of a sample of program participants revealed the following intentions:

- 72.58% will make and use a spending plan.
- 61.70% will make a plan to reduce debts.
- 100% will make changes to cut expenses.
- 100% will file for an Earned Income Tax Credit on their federal income tax return.

In FY 01, the Your Path to Home Ownership program, through partnerships and outreach in 10 parishes, taught 102 people how to better manage their finances, overcome their personal obstacles to home ownership, avoid costly mistakes during the home buying process, and protect their investments. In prior years this program helped over 540 prospective homebuyers. The majority are low- or moderate-income households.

Source of Funds

Smith Lever 3b, c

Scope of Impact

Multi-state: In FY 2001, 10.7 FTEs were spent on family resource management education resulting in 140,124 contacts. Based on an FTE cost of \$80,136 the total cost of the program was \$857,455. It is estimated that 35% of program effort is attributable to multi-state work in the acquisition and sharing of information. The dollar equivalent of this share of the program effort is \$300,109 (10.7 FTEs x \$80,136 per FTE x .35).

Multi-function: It is estimated that 25% of the program effort is attributable to collaborative work between research and extension in curriculum development, agent training, and presentations to clientele. The dollar equivalent of this share of the program is \$214,363 (10.7 FTEs x \$80,136 per FTE x .25).

Federal Goal 5

LEADERSHIP TRAINING AND DEVELOPMENT

Key Theme: Leadership Training and Development

Program Description

A major emphasis of the Louisiana 4-H Program is the development of leadership in both youth and adults. Research concludes that leadership skills are best developed through practice and application. Members are encouraged to assume some leadership roles within their club. The Illinois 4-H Curriculum "Leadership Skills You Never Outgrow" serves as the leadership project manual. Adults receive training at the parish, district, state, and regional levels. Salaried and volunteered staff attend the Southern Region 4-H Volunteer Forum for training ideas. What is learned is then offered to other volunteers in workshops offered at the state, district and parish levels.

Program Impact

In the past year, 7,850 adult volunteers received training and support. There were 13,188 youth enrolled in the 4-H leadership project. There were 5,183 youth who assumed leadership offices in their clubs, 6,527 youth demonstrated new leadership skills in the past year, and 5,339 youth assumed volunteer leadership roles within their parishes.

Source of Funds

Smith-Lever and Louisiana 4-H Foundation Funds.

Scope of Impact

Volunteer leader guides from the National 4-H Curriculum Cooperative System cost \$25,000. Training ideas obtained from other states, the southern region and national entities impacted all 4-H agents in the state. At least 20% of each agent's time is devoted to leadership development. Therefore, the dollar equivalent of multi-state work is \$1,346,285 (84 FTEs x \$80,136 per FTE x .20).

Federal Goal 5

SAFETY

Key Theme: Farm Safety

Program Description

Community meetings were held in each parish to determine items of interest and concern. This together with personal communications with citizens, insurance agents, and safety and health professionals resulted in identification of areas in need of greater safety awareness. Specific areas of need identified included agricultural safety, safety in the home, highway safety and outdoor safety. Delivery of the program employed a two-pronged approach; meetings, camps, workshops and displays devoted to safety, and the inclusion of safety aspects of other topics being taught. A total of 34,000 individuals were reached with the safety program. Of this total, 22,800 were in the area of farm safety including 11,800 taught in conjunction with other farm topics and 11,000 individuals who attended programs devoted to a particular safety topic. The topics and numbers reached are as follows: pesticides, 8300; animal safety, 300; and farm safety day camp (In cooperation with Progressive Farmer and Southeastern Louisiana University School of Nursing), 1400. Our outdoor safety program reached over 4200 individuals with the break down being: water and boating (in cooperation with the Coast Guard and La. Dept. of Wildlife and Fisheries (LDWF)), 2600; hunter safety (with LDWF), 600; lawn and garden and power tools, 500; and ATV safety (with local ATV dealers) 500. Safety in the home programs which included child safety, indoor air quality and lead safety, and electrical safety reached 3900 individuals. Highway safety topics reached a total of 3700 individuals which include bicycle safety, 3200; and defensive driving (National Safety Council Program), 600. A total of 3.26 professional FTE's were augmented by substantially more volunteer time.

Program Impact

The impact of safety programs is difficult to measure directly since the primary purpose is to prevent accidents from occurring which would require measuring what did not happen which would have happened without the program. This is beyond the scope of the program. However, some indication of the effectiveness of the safety training may be obtained by surveying the participants. These surveys resulted in 85 to 100% of the respondents for the individual programs indicating that they had increased knowledge and skills and that they would practice what they had learned.

Source of Funds

Smith Lever, 3d

Scope of Impact

A total of 3.26 FTEs of professional effort was expended on the safety program. Based on a cost of \$80,136 per FTE, the total cost of the program was \$261,243. Of the total professional effort, approximately 2/3 (2.2 FTEs, \$176,299) was developed from national materials.

Federal Goal 5

WORK FORCE PREPARATION

Key Theme: Work Force Preparation

Program Description

Louisiana 4-H collaborated with the Southern Region Rural Development Center and the National 4-H Council to develop a Work Force Preparation Tool Kit, an interactive, self-instructional, Internet-based career-planning training program (on diskette and as a Web page) for distribution electronically. Louisiana 4-H also collaborated with the National 4-H Council to implement a hospitality career program in Jefferson Parish.

Louisiana 4-H, in collaboration with the Southern University (1890) Program and the National 4-H Council, provided an opportunity for 6 extension agents and volunteer leaders to participate in a training to conduct an experience-based program that introduces children ages 8 to 12 to entrepreneurship principles. A direct result of the collaboration was the conduct of a summer camp involving 90 youth and 21 adult supporters.

Across the state, in 59 of the 64 parishes, advisory committees identified work force preparation as a major issue. Coordinated programs with Regional School-to-Work Partnerships and community colleges, and the support of other state extension programs, resulted in the conduct of a parish-wide career fair for middle school students and a summer program for high school students, the organization of a District Workforce Preparation Camp, and the development of a School Enrichment Program.

Curriculum from the National 4-H Curriculum Cooperative System and Kentucky Extension Service is used by Louisiana 4-H.

Program Impact

As a result of training and curriculum support, 8 Extension Service positions (Area Agents, Community and Economic Development) were reprogrammed to conduct work force preparation programs on a regional basis. As a result of training and new resources, some 2,000 youth gained knowledge on the importance of career planning.

Source of Funds

Smith Lever, National 4-H Council, Louisiana School-to-Work, and the Southern Rural Development Center.

Scope of Impact

15% of one state FTE and 10% of 8 parish FTEs of programming in this area are a direct result of collaborative efforts between Louisiana 4-H, National and multi-state cooperative efforts. The dollar equivalent of multi-state work is \$76,129 (1 FTE x \$80,136 per FTE x .15) plus (8 FTEs x \$80,136 per FTE x .10)

GOAL 5
RESEARCH SUMMARIES

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Controlling Off-flavor in Pond Cultured Catfish by Agricultural By-product Based Granular Activated Carbons

Goal: 5

Ramu Rao, Professor, Food Science Department, Louisiana Agricultural Experiment Station

Issue: One of the most severe problems facing most aquaculture farmers is off-flavor in pond-cultured catfish. Geosmin, known chemically as trans-1, 10-dimethyl-trans-9-decalol, is a metabolite of algae. It is one of the compounds most commonly cited as responsible for earthy and musty tastes and odors in water and is the principal cause of off-flavor in catfish. Geosmin is not considered a health problem, but when dissolved in water, it can be absorbed by the fish tissue making fish taste bad and impossible to sell. This problem is of special concern in the South, because Louisiana, Alabama, Arkansas and Mississippi account for 96 percent of the total sales by catfish producers, with sales of \$33 million from Louisiana alone. In one year more than 50 percent of the pond-cultured catfish in Alabama were unmarketable because of off-flavor, and in another year, 8.9 percent to 33.4 percent of the catfish produced in Mississippi could not be marketed because of off-flavor. This off-flavor problem extends from the producers, who cannot sell off-flavor catfish, through the processors, who must face the cost of testing, to the consumer, who may pay only to find they cannot eat it.

What was done: Coal-based granular activated carbons (GACs) are increasingly used in water treatment for dissolved substances of environmental or economic concern. Recent published literature by the LSU AgCenter's Department of Food Science (LAES Bulletin No. 869) indicated that sugarcane bagasse and pecan shell-based GACs hold promise as lower cost replacements for coal-based carbons (\$2 vs 50 cents/lb of GAC). Preliminary results of our study to explore the effectiveness of using agricultural by-product-based GACs for controlling off-flavors in catfish have shown that they are as effective as coal-based GACs and in some instances they were found to be even better.

Impact: In 2000, 28 billion pounds of sugarcane and 4 million pounds of pecans were grown in Louisiana. This resulted in the generation of an estimated 9 billion pounds of bagasse and 4.5 million pounds of pecan shells as byproducts with little economic value. The use of these agricultural byproducts as feedstock for GAC production, besides solving environmental problems, would turn these by-products into valuable commodities. An Alabama Agricultural Experiment Station study determined that if technology to prevent or control off-flavor existed, and allowed an increase of 15 percent in production, there would be an increase in revenue of \$8.3 million. This was at a time when an estimated 191 million pounds of catfish were sold to processors. Since that time, aquaculture has grown in the United States, with processing having increased to 593 million pounds in 2000. Furthermore, the use of nutshells and bagasse in the production GACs provides a less expensive raw material than coal now used, as well as producing GAC from a renewable resource.

Sources of Funding: State, Hatch, USDA-ARS Cooperative Agreement

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Finding New Market Opportunities for Louisiana's Alligator Industry

Goal: 5

T. A. Summers, Professor, School of Human Ecology, Louisiana Agricultural Experiment Station

Issue: The U.S. market for alligator leather, classified as an exotic leather by the apparel industry, has historically been limited to a fairly narrow range of products such as boots, belts and wallets targeted primarily to men. In contrast, this leather has been used in the European market primarily for feminine apparel products and accessories, such as handbags and shoes. As a result of differences in end-use of the raw materials, the European market for alligator leather is stronger and more fully developed than the U.S. market. Most skins produced in the United States, raw or tanned, are sold to manufacturers in Europe or Asia to be made into consumer products. Louisiana is providing the raw materials but failing to reap the benefits of value-added products, which would add significantly to the state's economy. Research that can provide marketing opportunities and strategies for Louisiana's alligator leather industry would directly benefit everyone involved in the chain of production (animal farmers, tanneries, manufacturers, retailers, and consumers) and have a direct and positive impact on the state's economy.

What was done: A new research initiative to determine market opportunities and develop promotional strategies for Louisiana alligator leather products began in 1997. Knowledge of performance characteristics of alligator leather is needed. Physical property tests were conducted based on the projected end-use of the leather product. Tests included stiffness, abrasion resistance, tear resistance, breaking strength and elongation, flammability, wrinkle recovery, crocking, drape, image analysis, durability and colorfastness to dry-cleaning. Consumers were surveyed to determine attitudes, perceptions, and knowledge of alligator leather products as well as their intent to purchase such products.

Impact: Alligator leather is appropriate for use in apparel with limited drape requirements; garment-and matte-finished skins will drape better than classic-finished skin. Alligator leather will also make fine home furnishing products as well as accessories, particularly, classic-finished due to its ability to retain shape. Belts, trim, and handbags or luggage are also good applications of alligator leather for the strength and abrasion resistance properties. Jewelry is another option. Consumers had limited knowledge of alligator leather characteristics, but most were aware that the leather requires special care. Most respondents were unaware that the American alligator is no longer on the endangered species list, but a majority stated they would purchase exotic leather apparel because of its unique qualities. Almost all respondents believed that wearing exotic leather is socially acceptable. Respondents preferred garments constructed entirely from exotic leather, as opposed to using it as garment components. Overall, respondents reported a preference for classic and traditional apparel styles. Many respondents commented about their preferences for shoes, bags and accessories made from exotic leathers. Exotic leather apparel must be targeted to a specific market. Exotic leather apparel is more suitable for special category apparel, which is typically more expensive and can be worn for several seasons. Consumers must be educated to entice them to purchase exotic leather products. Advertisements must increase the knowledge level and stimulate interest. This project is designed to stimulate the demand for Louisiana-produced alligator leather and products. Expansion of existing U.S. markets and development of new markets can result in an increase in demand for raw materials and finished products and stimulate the established alligator industry for Louisiana.

Sources of Funding: State, Hatch, Louisiana Fur and Alligator Advisory Council, Louisiana Alligator Farmers and Ranchers Association

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Key Theme: Dyeing Fabrics with Gold and Other Metals

Goal: 5

W. J. Todd, Professor, Veterinary Science Department, I. I. Negulescu, Associate Professor, School of Human Ecology, Louisiana Agricultural Experiment Station

Issue: The ability to generate color in fabrics of high stability and resistance to chemical bleach and photobleaching is important to the textile industry. In addition, changes in environmental standards have limited the use of many successful, but toxic dyes, and associated non-aqueous solvents required by many previously used dyes. The problem is to develop new classes of dyes that are environmental friendly, attractive and resistant to fading associated with sunlight and the application of chemical bleaching agents commonly used for removal of stains.

What was done: Ultra-small particles of gold, silver and other metals are widely used in medicine and photography. These particles can be made by changing oxidation states of metal ions to allow formation of particles to yield permanent results of fine detail. For rapid assays to detect either the antigens of pathogens, or the presence of antibodies produced in response to those pathogens, gold microparticles are the reagents of choice. Such particles inherently display a strong signal to particle ratio, meaning that few particles can produce a strong visible signal. Because the particles are so small, only relatively few are needed to produce a signal, the cost of the gold, or other metal, is negligible relative to the cost of the other specific reagents in the test. Researchers at the LSU Ag Center have devised a general method to form particles of pure metals, metal alloys, and microaggregates of metal complexes, as integral components of the substructure of fabrics. These mineral-like complexes are formed in situ by reduction of metal ions in aqueous solution at reducing sites introduced into the fabric. Because these complexes are so small, they do not alter the character of the cloth, except to impart a color based upon the size and spacing of the particles and on the type of metal ion or ions chosen.

Impact: The method we have developed is capable of yielding a variety of attractive colors. Because the colors are not based upon the usual organic dyes, the particles of color are much more resistant to the effects of photo and chemical bleaching than are many of the traditional dyes. In addition, because the methods are all based upon the use of water as a solvent and the reactions can be run to exhaustion, the waste products are mainly water, and not unused dyes. The dyes are typically only formed at the reaction sites attached to the fabrics and are not present in solution.

Sources of Funding: State

STAKEHOLDER INPUT

The LSU AgCenter consistently seeks stakeholder input on all research and education programs in order to maintain a focus on clientele needs and ensure that its research and extension programs have value and impact. The AgCenter works closely with all the major commodity associations, i.e., cattlemen, rice producers, grain producers, sugarcane producers, the Louisiana Farm Bureau, family and community development associations, 4-H youth associations and groups to get input and guidance on programs. These organizations not only give guidance but also support many of the programs with monetary and physical assistance.

Extension Section

The Cooperative Extension Service had conducted a series of community focus forums in every parish during the 1999-2000 program year involving a wide base of the citizenry and leadership of the state, including public officials, and representatives of business and industry, and youth and minority groups. The diversity of the state was captured by ensuring that gender, age, and ethnic groups were represented in the forums. Parish forums identified key concerns and issues needed to be addressed for a better future for parish residents. Major concerns identified in the forums were economic development, protection and conservation of the environment, quality education, youth development, family support and structures, crime and other social issues. Based on this input from stakeholders, the LCES developed a statewide strategic plan for the five-year period, 2000-2004, focused on 12 initiatives – After-school Education and 4-H Adventure Clubs; Economic Development; Master Farmer; Water Resources Management; Waste Management; Coastal Restoration, Environmental Horticulture; Family Financial Management; Farm Financial Management; Leadership and Volunteer Development; Nutrition, Diet, and Health; Parenting and Child Care. Parishes reported to their citizen groups the outcome of the forums, including strategic plans at the local and state level to address the initiatives that would be addressed. Initiative teams consisting of extension agents and specialists, and researchers have since developed action plans and educational resources and curricula to enable agents to conduct education programs in need areas.

In addition to the above strategic planning process, parishes continued to involve leaders and influentials in agriculture, home economics, youth, and community and economic development in various commodity and subject-matter advisory committees to provide input on needs and problems which could be addressed in local programs. For a state perspective, extension specialists engaged representatives of their commodity or subject-matter area to give input on clientele needs and problems.

Research Section

Louisiana Agricultural Experiment Station scientists and administrators continued to meet regularly with a number of stakeholder groups as indicated in the Plan of Work. A representative but not a comprehensive list of some of these meetings is attached. The generalized forum for these stakeholder sessions is a series presentations of research findings and proposed research activities by scientists directly to the stakeholder panels. This is followed by questions and discussion led by the stakeholders which provides focus, direction, and specific suggestions that are incorporated into the respective research programs.

On a broader dimension, LAES scientists and administrators participate each year in the Louisiana Farm Bureau Federation Annual Convention. As reflected in the Plan of Work, this is the predominant agricultural organization in Louisiana representing the total spectrum of agriculture, natural resources, youth, and policy issues of concern in Louisiana. Beyond the general sessions, scientists and administrators participate and interact directly in “commodity advisory committees” which are constituted by stakeholders and provide another important feedback opportunity relative to research needs and recommended directions.

Another dimension of obtaining stakeholder input for research programs are the “Agricultural Center Exchange” groups which meet in conjunction with the LSU Agricultural Center’s Annual Conference each year. These groups cover all of the economically important commodities produced in Louisiana as well as environmental, value-added, family, economic, and nutrition issues. Each session is attended by all Ag Center research scientists and extension specialists and agents with programs in the respective areas. Stakeholder input into research programs is provided by the cooperative extension personnel who bring a statewide perspective of the highest priority needs and researchable problems.

MERIT REVIEW
Meetings with Stakeholders - (1998 - 2001)

Cotton Support Committee:	March 18, 1998 March 17, 1999 March 14, 2000 March 13, 2001
Rice Research Board:	October 28, 1998 December 16, 1999 December 14-15, 2000 November 12-13, 2001
Soybean and Grain Research & Promotion Board:	December 1-2, 1998 December 8-9, 1999 November 30-Dec 1, 2000 November 28-29, 2001
American Sugarcane League:	February 3, 1998 February 4, 1999 February 23, 2000 January 28-29, 2001 February 19, 2001 January 28, 2002
Louisiana Beef Industry Council:	May 5, 1998 October 14, 1999 October 10, 2000 October 11, 2001
Louisiana Catfish Promotion and Research:	September 2, 1998 June 23, 1999 September 29, 1999 December 5, 2000 August 29, 2001 October 29, 2001
Louisiana Crawfish Promotion and Research Board:	May 19, 1998 August 10, 1999 July 17, 2001

Meetings with Stakeholders - (1998 - 2001) - Continued

Louisiana Sweet Potato Commission:	June 11, 1998
	June 17, 1999
	June 14, 2000
	June 13, 2001
Louisiana Farm Bureau Federation:	July 3, 1999
	July 15, 2000
	July 12-15, 2001

PROGRAM AND PROJECT REVIEWS

Two comprehensive CSREES program reviews were held during the reporting period. A review of the statewide research and extension programs in Veterinary Science was held on March 11-15, 2001. Statewide research and extension programs in Entomology were reviewed on March 25-29, 2001. Both reviews were conducted by panels consisting of CSREES leaders and research/extension peers from other universities. The focus of the reviews was directed toward the future roles of research and extension professionals working in an integrated manner to address Louisiana's needs in these two important areas.

Project peer reviews of the proposed research activities of individual scientists continued according to CSREES guidelines as reflected in the Plan of Work. Approximately 37 project reviews were conducted which led to the establishment of approved projects with initiation dates during the reporting period, 10/1/00 to 9/30/01. Following the established policy, review comments are solicited from peer scientists and extension specialists and the comments and a synthesis of recommendations are provided to the originating scientist by a member of the LAES administrative team. The changes made in the proposed project by the originating scientist are then reviewed at the LAES administrative level prior to final project approval.

EVALUATION OF MULTI-STATE ACTIVITIES

Extension Section

The evaluation of multi-state activities has been beneficial in identifying ongoing activities and opening up new opportunities for collaboration between states and extension/research personnel thus strengthening the overall cooperative effort. In most cases, programs were identified and developed that had been identified by stakeholders. Under-served and under-represented populations were identified especially in youth and family and consumer sciences programs. Preliminary assessments indicate that these programs are having the desired impact. Effectiveness and efficiency in utilizing materials from other states, collaborating on research projects, and communication among professional faculty and staff in different states have improved. Multi-state efforts initiated last year among Arkansas, Mississippi, and Louisiana on pesticide applicator training, digital diagnostic centers, and limited resource management program for young families were successfully continued through new materials, publications, and joint training programs. In addition, extension specialists participated in the Southern Extension Research Association (SARE) exchange groups, the Southern Agriculture and Natural Resources committees, and numerous national and regional meetings. These exchanges provide extension professionals with new ideas and materials, and enable collaborations that result in new and more effective programs for Louisiana. Furthermore, the economic development initiative of the LCES has been greatly enhanced by collaborative work with the Southern Rural Development Center, Mississippi.

Research Section

The Louisiana Agricultural Experiment Station has traditionally encouraged and supported multi-state (formerly regional) research activities. LAES scientists have played significant leadership roles in many multi-state activities and they continue to do so today. In fiscal year 2001-2002 LAES scientists were active participants in 463 approved multi-state projects. Of these 463 projects, 16 (35%) were North Central, North East, Western, or NRSP-based activities which reflects the truly national scope of what we refer to as multi-state research. These 463 projects address each of the five national goals. To further reflect the LAES support and involvement scientists' travel expenses to annual technical committee meetings is currently being supported from administrative funds. Finally, to further indicate involvement and support, LAES Directors currently serve as administrative advisors to 10 active multi-state research projects.

INTEGRATED RESEARCH-EXTENSION ACTIVITIES

During the year, the LSU AgCenter was reorganized to more closely align research and extension functions in addressing problems and issues of various client groups. At the campus level, extension specialists who had been centrally located in the Cooperative Extension Building were moved into respective subject-matter departments and housed with their research counterparts under the administrative supervision of a department head. Several joint research-extension appointments have been made to promote integration. In the field, administrative lines were redrawn to create eight regional research and extension centers, subsuming parish extension agents and experiment station research personnel under their supervision. Regional directors were in the process of being appointed to provide administrative guidance and better integrate research and extension efforts at the point of local program delivery.

In this way new competencies are brought to both the extension and research clientele. More use of joint appointments is likely as the departmentalization is completed in FY 2002. This administrative approach includes placement of specialists at experiment stations around the state. Joint appointments are increasing at the stations.

Research and extension personnel continued to work closely to develop joint publications, coordinate research, and conduct educational programs. Concerted efforts have been made to improve communication between research and extension personnel so as to provide improved and rapid service to clients. Special initiatives such as the Formosan subterranean termites, fire ants, water quality, and master farmers are being jointly conducted by the Extension Service and experiment station personnel.

Each year, research and extension personnel meet in AgCenter Exchange Groups. Researchers update extension personnel on the latest research projects and results, and extension personnel share their educational programs and the issues and problems their clients are facing for researchers to review and consider in their research agendas. In addition, teams of research and extension personnel meet in discussion groups two to four times a year to update one another on the latest research and education programs.

In the plant science area, researchers and extension specialists meet each year to review research and make recommendations for new varieties, fertilizers, pesticides, and other cultural practices which subsequently form the management practices recommended to clientele.

INTEGRATED ACTIVITIES

Farm Production Budgets/Market Economics:

Projected costs and returns for numerous Louisiana commodities were developed and/or updated and provided to farm management specialists. These "production budgets" are used cooperatively with extension specialists and presented at grower meetings. Among the crops covered are catfish, crawfish, beef, dairy, broilers, forages, cotton, soybeans, corn, milo, wheat, rice, sugarcane, and vegetables.

Crop Genetics/Variety Trials/Variety Recommendations:

Variety trials were conducted on corn (hybrid), wheat, soybeans, cotton, warm and cool season forages, sweet potatoes, and sugarcane. Results are published and provided to seed dealers, producers, and extension specialists. Researchers participate directly with extension specialists as the varieties recommended for planting are being selected. Both research and extension personnel became involved in outreach activities in variety recommendations through participation in parish (county) agent training sessions and commodity producers meetings.

Insecticide Efficacy/Insecticide Recommendations*:

Insecticide efficacy studies are conducted on all major Louisiana plant and animal pests. The data from the efficacy studies are provided to extension specialists, crop consultants, and producers at seasonal meetings and through direct contact. Research scientists participate directly with extension specialists to prepare insect control recommendation guides which are used throughout the extension system in educational activities.

Herbicide Efficacy/Herbicide Recommendations*:

Herbicide efficacy studies are conducted on all major Louisiana crops. The data from these efficacy studies are provided to extension specialists, crop consultants, and producers at seasonal meetings and through direct contact. Research scientists participate directly with extension specialists to prepare weed control recommendations which are used throughout the extension system in educational activities.

Plant Health/Treatment Recommendations*:

When cooperative extension specialists encounter plant health diagnosis problems they are assisted by research scientists. The scientists involved carry applied research activities on the efficacy of disease preventive agents and are

active in providing assistance in the formulation of disease control recommendations used by extension specialists in educational programs.

Food Processing/Packaging/Safety:

Research scientists interact with and coordinate programs with extension specialists to develop new food safety procedures and deliver food processing and food safety information. Scientists participate in HACCP training sessions and a "Muscle Foods Laboratory" is jointly used for research studies and extension demonstration.

Animal Health/Treatment Recommendations:

Veterinary science researchers conduct programs on aquatic animal health, anthelmintic delivery and efficacy, bovine respiratory disease, and brucellosis. Programs are closely coordinated with the extension veterinary specialist, the School of Veterinary Medicine Diagnostic Lab, and the Louisiana Department of Agriculture and Forestry.

Soil Testing/Fertility Recommendations:

The Soil Test Laboratory is operated by the LAES and all results are provided to the LCES soil scientist for fertility recommendations. County agents are involved in the delivery of the fertilizer recommendations.

Animal Waste Management:

Major research and extension outreach activities in this area are closely integrated. Land application of poultry litter and runoff from extensive dairy operations are the highest priority areas. Research scientists teamed with extension specialists to prepare the waste management sections for BMP manuals used in extension outreach programs.

Master Farmer Program:

The Master Farmer Program was initiated based on a need to demonstrate that the impact of agricultural practices on the environment can be reduced. The program addresses the need for a voluntary approach to adopt best management practices. There are three components to the program: 1) Environmental Stewardship, 2) Agricultural Production and 3) Farm Management. The development of materials was anchored in a strong relationship with researchers. The program was implemented on a watershed basis due to the organization of research material in that manner.

*Parish (county) agent training meetings, commodity producer meetings, the Louisiana agricultural Consultants Association annual workshop and the annual meeting of the Louisiana Plant Protection Association are characterized by programming that includes the integrated activities engaged in by research and extension professionals in entomology, weed science, and plant pathology. These educational venues highlight integrated activities conducted throughout the year and by their nature-are integrated activities.

U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities

Institution: LSU Agricultural Center
 State: Louisiana

Check one: X Multistate Extension Activities
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures FY2001
Ag Financial Management	20230
Agricultural Marketing	11019
Aquaculture	87951
Beef	148972
Cotton	14324
Dairy	80216
Digital Diagnostic	50464
Farm Safety	48482
Fruits and Nuts	62872
Home Lawns/Gardening	141039
Integrated Pest Management	105754
Nematode Control	16528
Nursery and Ornamentals	16418
Ornamental/Green Agri	9917
Plant Pathology	1102
Soybean and Grains	22544
Weed Science	19834
Wood Products	881
(continued on page 104)	

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 Multistate Extension Activities and Integrated Activities

Institution: LSU Agricultural Center
 State: Louisiana

Check one: X Multistate Extension Activities*
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures FY2001
Food Safety	43634
Food and Nutrition (FNP)	35039
Human Health	78453
Formosan Termites	15426
Continuing Education in Natural Resources	39667
Master Farmer	27547
Master Tree Farmer	46279
4-H Natural Resources	17189
Pesticide Applicator Trg	11900
Poultry Waste	22302
Water Quality	13223
Water Resource Mgt	33827
Character Education	47380
Child Care	63906
Eco Dev Analyses	31486
Eco Dev (Business)	31486
Eco Dev (Tourism)	31486
(continued on page 105)	

*Expenditure from federal budget (Smith-Lever 3 b,c,d) in FY 2001 was 27.5% of total Cooperative Extension budget (state and federal). Multi-state (total) and multi-function (total) dollars multiplied by .275 to determine share of Smith-Lever funds attributed to multi-state and multi-function work.

U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities

Institution: LSU Agricultural Center
 State: Louisiana

Check one: Multistate Extension Activities*
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures FY2001
Family Economics	82530
4-H Youth	543640
Leadership T & D	370228
Parenting	36362
Workforce Preparation	20935
Total	<u>2514372</u>

Paul Coreil, Director

03/18/02

*Expenditure from federal budget (Smith-Lever 3 b,c,d) in FY 2001 was 27.5% of total Cooperative Extension budget (state and federal). Multi-state (total) and multi-function (total) dollars multiplied by .275 to determine share of Smith-Lever funds attributed to multi-state and multi-function work.

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Institution: LSU Agricultural Center
 State: Louisiana

Check one: Multistate Extension Activities
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)*

Title of Planned Program/Activity	Actual Expenditures FY2001
Ag Financial Management	10140
Aquaculture	54214
Beef	238356
Cotton	183571
Dairy	90243
Fruits and Nuts	139937
Home Lawns/Gardening	158669
Integrated Pest Management	105754
LA Rice Res Verification	26996
Nematode Control	3305
Nursery and Ornamentals	16418
Ornamental/Green Agri	1102
Pasture and Forage	11107
Soybean and Grains	26302
Weed Science	183569
(continued on page 107)	

*Expenditure from federal budget (Smith-Lever 3 b,c,d) in FY 2001 was 27.5% of total Cooperative Extension budget (state and federal). Multi-state (total) and multi-function (total) dollars multiplied by .275 to determine share of Smith-Lever funds attributed to multi-state and multi-function work.

U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities

Institution: LSU Agricultural Center

State: Louisiana

Check one: Multistate Extension Activities
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)*

Title of Planned Program/Activity	Actual Expenditures FY2001
Food and Nutrition (FNP)	29200
Human Health	58840
Air Quality	8264
Formosan Termites	15426
Continuing Education in Natural Resources	39667
Master Farmer	159771
Master Tree Farmer	46279
4-H Natural Resources	17189
Poultry Waste	55755
Water Resource Mgt	39667
Wildlife Management	41871
Child Care	63906
Eco Dev Analyses	10468
Eco Dev (Build Capacity)	3306
Eco Dev (Business)	10468
Eco Dev (Tourism)	10468
Family Economics	58950
Parenting	24241
 Total	 <u>1934845</u>

Paul Coreil, Director

03/18/02

Expenditure from federal budget (Smith-Lever 3 b,c,d) in FY 2001 was 27.5% of total Cooperative Extension budget (state and federal). Multi-state (total) and multi-function (total) dollars multiplied by .275 to determine share of Smith-Lever funds attributed to multi-state and multi-function work.

U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities

Institution: LSU Agricultural Center
 State: Louisiana

Check one: Multistate Extension Activities *
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures FY2001
Farm Production Budgets/Market Economics	85948
Crop Genetics/Variety Trials/Variety Recommendations	234,390
Insecticide Efficacy/Insecticide Recommendations	179,973
Herbicide Efficacy/Herbicide Recommendations	50796
Plant Health/Treatment Recommendations	268177
Food Processing/Packaging/Safety	45751
Animal Health/Treatment Recommendations	52443
Soil Testing/Fertility Recommendations	53109
Animal Waste Management	64685
Total	<u>1035272</u>

William H. Brown, Director

03/18/02

MULTI-STATE AND MULTI-FUNCTION BRIEFS

The LSU AgCenter is fully engaged with other institutions. Many of the materials, ideas and programs have come from other states. The free sharing of materials, ideas and programs at regional and national scientific meetings is the strength of the Land Grant System. Many specialists assist with agent and producer training in the surrounding states and those efforts are expanding continually. Additionally, all of the recommendations and programs are research-based and research personnel are used extensively in developing recommendations, publications, training agents and producer meetings.

To determine multi-state work, each specialist estimated the percentage of material, ideas or program that were obtained from other states through publications or meetings. The percent multi-state effort was multiplied by the number of FTEs devoted to the program times the average salary per FTE.

Percent

Program

Due to

Multi-State

Publications

Meetings

Training